

THE IRON AGE

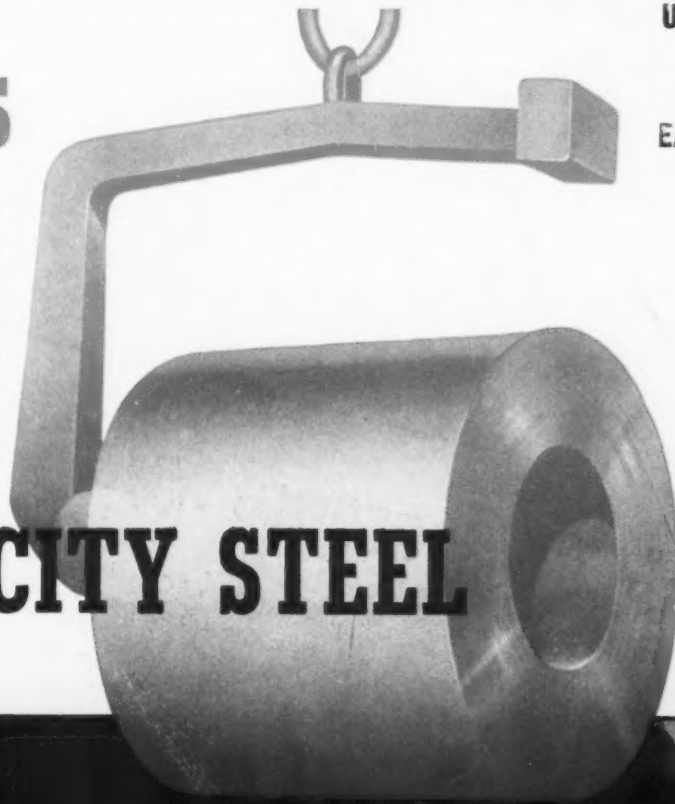
THE NATIONAL METALWORKING WEEKLY

November 2, 1950

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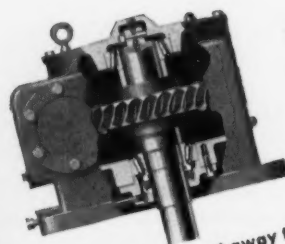


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Above—ND unit, cut away to show tapered roller bearings on gear shaft, positive face-type oil seal, unique lubricating pump and oil drain at base of housing.

Left—1,000-gallon mixing kettle built by the Water Tube Boiler & Tank Co. for the Pyroxylin Products Co., Chicago, for use in mixing viscous lacquers.

Low overhead clearance with ND mixer drive

An outstanding advantage of Cleveland's new ND vertical worm gear speed reducer is its low height. Installed on this 1,000 gallon mixing kettle, the ND unit adds only 16 inches to over-all height—no more than that of the motor.

The ND reducer and its companion NU unit (with drive shaft upward) are available in seven sizes each. Because of their several unique construction features, they will give efficient, trouble-free service on such equipment as agitators, mixers, overhead chain conveyors, etc., wherever vertical drives without outboard bearings are desirable.

For complete description, capacity charts and other engineering data on types ND and NU, write for our Bulletin 125. The Cleveland Worm & Gear Company, 3252 East 80th Street, Cleveland 4, Ohio.

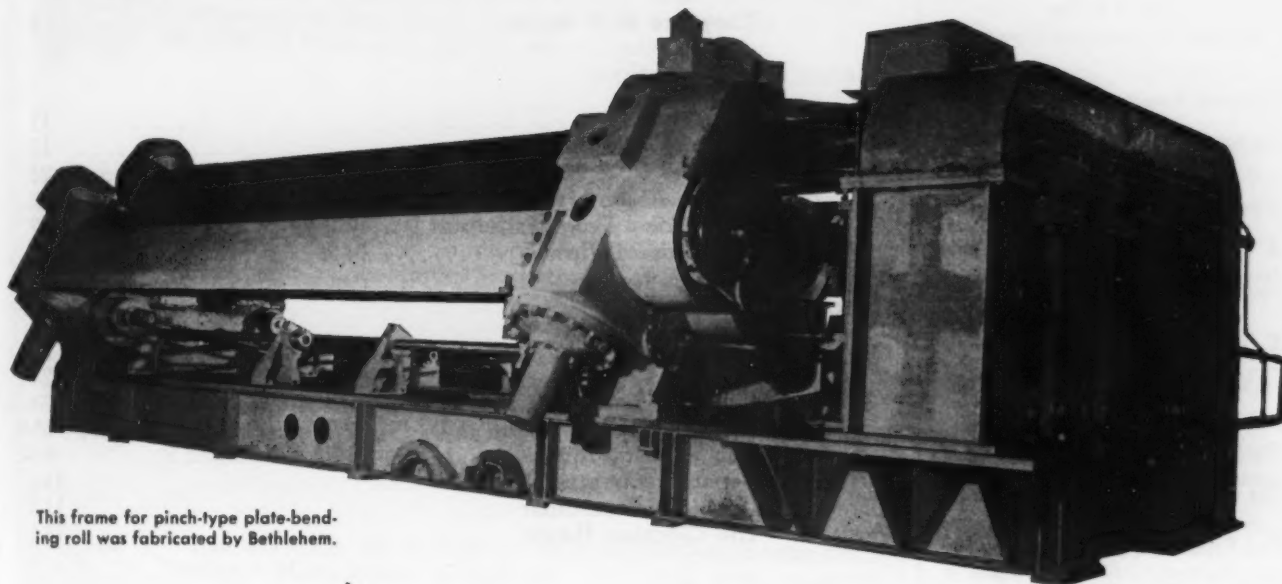
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This frame for pinch-type plate-bending roll was fabricated by Bethlehem.



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November 2, 1950

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THE IRON AGE

CONTENTS

Editorial

They Are At It Again	7
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News Interpretations

Newsfront	11
The Iron Age Summary	15
Machine Tool Highspots	29
On the Assembly Line	72
West Coast Progress Report	77
The Federal View	79

Regular Features

Dear Editor	20
Fatigue Cracks	24
Free Publications	34
New Production Ideas	35
Iron Age Introduces	68
Construction Steel News	116
Dates To Remember	118
The Clearing House	164

Technical Articles

Tool Shop Foundry Cuts Die Costs	81
Metal Show Report	84
Sodium Content In Aluminum Speedily Analyzed	88
First Manhour Study Now Available	92
Selective Hardening Enables Machine Speedup	93
Automatic Conveyer Handles 400-lb Doors	95
Diecast Magnesium Replaces Wood Chair Parts	96
German Plating and Finishing	98

Spot News of Industry

NPA Adds Rules for Handling Steel Orders	103
Industrial Shorts	104
Canadian Firm Ships Hot Ingot	105
Aluminum Nails Gain Favor Among Users	106
Titanium Standards and Extras Listed	107

Markets & Prices

Markets Briefs and Bulletins	135
Nonferrous Metals Outlook	136
Nonferrous Prices	137
Iron and Steel Scrap Market	138
Iron and Steel Scrap Prices	140
Comparison of Prices	142
Steel Prices	144
Stainless Steel, Pipe and Tubing Prices	146
Warehouse Steel and Pig Iron Prices	147
Miscellaneous Steel Prices	148
Ferroalloy Prices	152

Index to Advertisers	177
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Special Article



By adding a zinc alloy foundry to its tool and die shop, a Midwestern firm makes low cost dies for design tryouts on difficult stampings and for short runs.—p. 81.

Issue Highlights



A new photometric method for determination of sodium in aluminum can be completed in 30 min with better accuracy than conventional techniques.—p. 88.



Switching from overall hardening before machining to induction heating only where needed stepped up production by permitting higher machining speeds on a Buick transmission part.—p. 93.



Top event in the metalworking field last week was the National Metal Show in Chicago. For those who weren't lucky enough to attend IRON AGE photographers and editors were on the job spotlighting the highlights of events and personalities.—p. 84.



NPA has set up machinery for steel allocation for defense-supporting programs by adding a new section to NPA M-1. First to be approved under the amended order was the freight car program.—p. 103.



A Canadian firm has shipped hot ingots for the first time. The move cuts 2 months from processing time. The ingots were moved 200 miles at 1700°F, losing only 125°F in shipment.—p. 105.



The aluminum nail, essentially a postwar product, is beginning to come into its own. The steel shortage was the toehold needed by this product to become firmly introduced to nail users.—p. 106.



As proof that titanium is becoming a commercial metal a list of standard sizes, base prices, and extras have been published by Titanium Metals Corp. Standards cover sheet, strip, bar, wire and forgings of commercially pure and alloy grades.—p. 107.

Coming Next Week



Two high-speed lathes, developed in Germany, will soon be built in the U. S. A trepanning lathe bores holes in forgings at rates up to 41 ft per hr. A rough turning lathe can remove as much as a ton of metal per hr.

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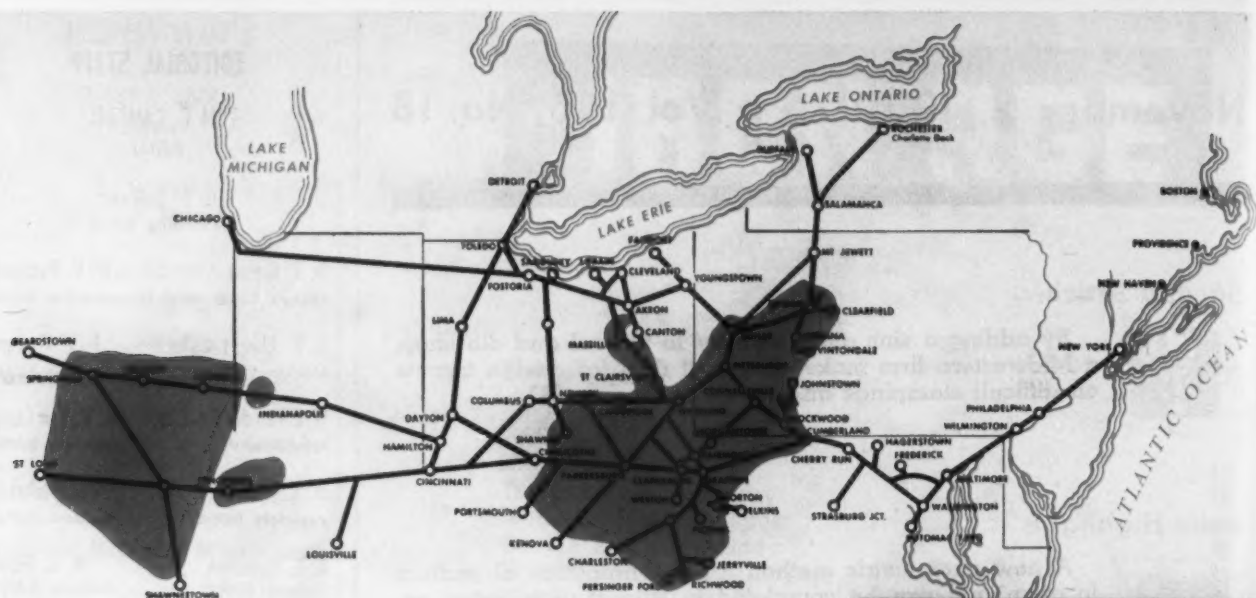
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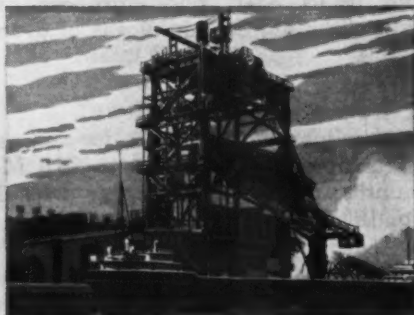
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Editorial

INDUSTRY VIEWPOINTS

They Are At It Again

THE butcher came to our house and told us we needed an operation. He would do it if we didn't call in a surgeon at once.

Then the bread man stopped by and said we did not know how to run our house. We needed new plumbing and he would put it in.

The grocer came along and said what do you know about raising your kids and why shouldn't he move in and tell them off? Then while he was there the door bell rang. It was the insurance man who dropped by to tell us that all the suits and coats we had were not good enough. He was going to get us more of them made and bill us later.

The phone rang and who do you think was on the wire? It was John Tinkellbell. He heard we were overdrawn and what did we mean by that. He was the police chief and he ought to know what we should do with our money. He said he will have to come over and make up our budget.

Just before we took down the old musket that great-grand-pappy used on tax collectors, a telegram came from our old friend the gardener who wants to pull all of our teeth. He will get us brand new ones at wholesale—with gold no less.

What's all this about? Not much except that the steel people are now in the midst of a situation like this zany, topsy-turvy one. The pattern is laid. The people in Washington who don't know an ingot from a brassiere want more capacity. They want a lot more.

They have sent their emissaries throughout the country preaching that steel people know nothing about their business and ought to have the government tell them what to do.

That is the gist of Mr. Stuart Symington's asides. That is the line C. J. McCormick, Undersecretary of Agriculture, is using on the farmers.

That is the spiel Crow G. Davidson, Assistant Secretary of Interior, is giving to independent oil people. That is the line that will be used far and wide as months go by.

Can it be any wonder that some people in the government who want to take over the industry are jumping up and down with delight with such support? Will the steel people who have racked their brains and given their side ever get it over in the face of such bilge?

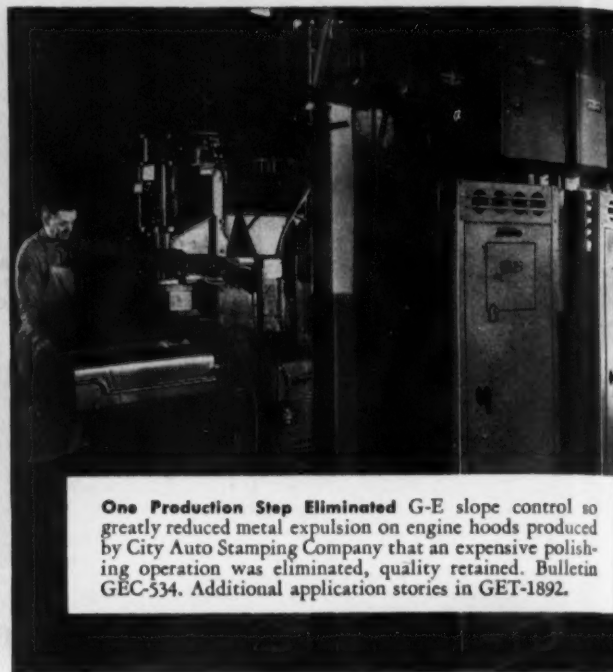
The plain, simple truth is that the steel industry expands year after year to meet its demands no matter what its members or Washington people say. Look at the record.

Tom C. Campbell

Editor

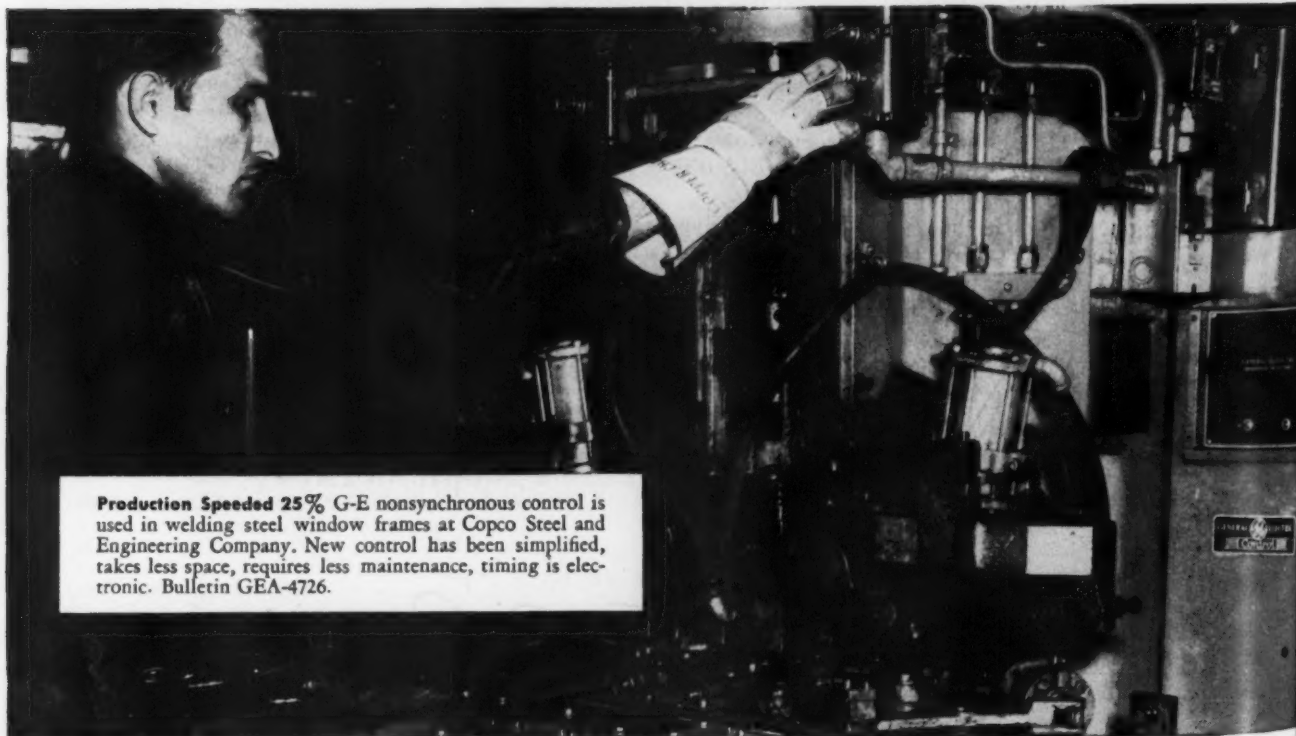


New Alloy Welded—just .007 inch thick G-E Thyatron spot-welding control is used at the Elgin National Watch Company on a Dura Power mainspring. Elgin reports, "Thanks to G-E control, work is easy, accurate, and production is high." Bulletin GEA-4175A.



One Production Step Eliminated G-E slope control so greatly reduced metal expulsion on engine hoods produced by City Auto Stamping Company that an expensive polishing operation was eliminated, quality retained. Bulletin GEC-534. Additional application stories in GET-1892.

LOOK!



Production Speeded 25% G-E nonsynchronous control is used in welding steel window frames at Copco Steel and Engineering Company. New control has been simplified, takes less space, requires less maintenance, timing is electronic. Bulletin GEA-4726.

NEWSFRONT

NEWS, METHODS AND PRODUCT FORECAST

► Orders recently placed for guns call for higher strength levels than those of World War II. The minimum transverse yield strength specified for 75 mm and 76 mm types is 160,000 psi. In addition minimum transverse impact properties at -40°F are required and these values vary with the yield strength. The maximum yield strength at 0.02 pct offset is set at 190,000 psi.

► Tungsten thoria electrodes for arc melting of titanium metal from the sponge will shortly be employed on production furnaces. The electrodes are water-cooled, nonconsumable and produce a very stable arc.

► An ultrasonic inspection device which produces an acoustical image of defects or voids in metals has just been developed in this country. The unit is not yet available as a commercial testing device but one prototype has been built. The principle of this machine is similar to that of a German idea developed during the last war.

► The use of boron in steel to replace alloys is fast returning. During the last war boron was used to a limited extent to produce higher hardenability in certain alloy grades. Two standard compounds Grainal and ferroboron are available but not in sufficient quantity to meet the predicted demand of 10 times the tonnage used during World War II.

► A new punch designed to eliminate punch breakage and extend life between grinds has exceeded expectations. The punch produces a 100 pct sheared hole to such close dimensions and good finish that it is now replacing drills in many applications.

► A new induction weld pipe mill will soon be in operation. The mill is built to weld 36 in. diam. pipe, 3/8-in. thick wall at a speed of 1/2 in. per sec.

► A recent check of the iron-carbon diagram has revealed that the eutectic temperature is at least 23°C too low. This fact was found by accident as the research laboratory was merely testing some of its latest equipment and was using the iron-carbon diagram for standard reference points.

► Due to the late start of the ore shipping season this year, one major steel producer is planning to ship ore into Chicago and Pittsburgh this winter by rail. Present plans call for use of the Duluth Chicago line and Eastern Trunk lines. This will increase cost of steelmaking because of added freight.

► A pilot plant is now producing hollow extruded propellers for Army aircraft. The props are hot extruded and are made with a variable wall thickness.

► Industry's manpower situation is already acute. Plants expanding for arms work are making successful "raids" on heavy industrial areas. Draftsmen and toolmakers are short. Personnel people are studying rolls to see where women can be substituted but this source will probably not be as important as it was during World War II.

► Every effort will be made to conserve manganese in steel production but the maximum saving possible is 10 pct, except in some special techniques. No more than 5 pct can be saved by changing steel specifications and no more than 5 pct can be saved by changing steelmaking practice.



The Microcarb Control for the new Series H Homocarb Furnace occupies panel at left in above photo, next to the usual temperature control panel. (1) is the Carbohm primary element; (2) the Microcarb controller for carburizing atmosphere; (3) the Micromax Atmosphere Recorder.

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May Take 45 Pct of Flat-Rolled

Wages, Prices Still Headed Up

The Iron Age

SUMMARY

IRON AND STEEL INDUSTRY TRENDS

GOVERNMENT orders providing steel for essential civilian use are now beginning to hit hard at other steel users. Information now available shows that defense steel plus that earmarked for essential civilian production will total between 20 and 25 pct of total steel output when all programs are in full swing—by next June. By that time these programs will probably take between 40 and 45 pct of all flat-rolled steel production—sheets, plate, etc.

The Tail Wags the Dog

So-called "essential civilian" steel allocation is already wagging the tail of the defense production dog. These programs are here now or coming fast while defense orders are gathering steam slowly. Two civilian allocations alone will take 11.5 pct of next years' steel output, according to current plans. Freight car building and repair will take almost 4 million tons; the oil and gas industry will probably get about 7.5 million tons. The figures are not yet in for shipbuilding (ore boats, barges, fast cargo ships); agriculture (implements, grain storage bins, food containers); steel and other plant expansion.

These are a few of the reasons steel consumers see nothing but chaos ahead in the steel market. They also explain why controls over steel distribution must inevitably move in the direction of a controlled materials plan.

While most attention is being focused on steel distribution, the men who make steel have been pouring a few records of their own. After setting five consecutive new all-time records for steel melted in a single week, they planned this week to hold their operations at 102.5 pct of rated capacity. The records for sustained pro-

duction are too numerous to mention but they add up to a record year of steel output.

Barring unforeseen trouble, the steel industry is well on its way to producing more than 96 million ingot tons of steel this year. The industry has long dreamed of a 90 million ton year and this is it, provided good luck holds out. Highest previous production was 89.6 million tons during the wartime year of 1944. Previous peacetime high was 88.6 million tons in 1948. Last year's output totaled 77.8 million tons.

It won't be long until steelworkers get their 17½¢ to 18¢ an hr which will include 12½¢ to 13¢ base pay increase and about 5¢ an hr for fringe extras covering holidays, vacations, inequitable wage rates, and increased pension payments. White collar workers will get a corresponding increase.

Current negotiations have covered the broad problems and have narrowed down to details, precise language, extension of present contracts and discussion of the definite limits to fringe concessions. Most of the latter involve considerable study due to the technical language and the great number of people involved.

Steel Hike After Wage Boost

Steel prices will go up promptly after the wage concessions are granted. They will go up, as predicted last week by THE IRON AGE, by \$6 to \$10 a ton with the majority of increases being closer to the high figure. The average increase for all steel prices will be more than \$8 a ton due to past increases in steelmaking costs, wage concessions to be granted and also the need for large sums of money for steel capacity expansion and replacement, plus dividends to encourage investment.

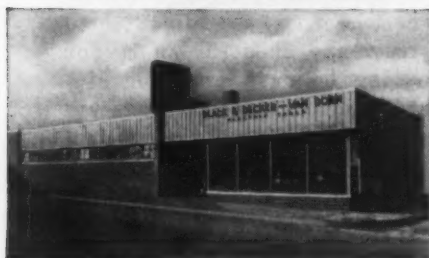
(Nonferrous summary, p. 136)



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Dear Editor

Letters from Readers

Valuable Potential Ignored

Sir:

Your editorial, "Handicaps Are Gold Mines" in the Oct. 12 issue has, shall we say, "blown my fuse." Have you ever tried to secure employment for a handicapped person? At least one with good education and brains? Have you ever seen a poll of industry regarding attitudes towards the employment of physically handicapped persons generally?

I have a son 23 years old. He is a "Cerebral Palsy." He walks reasonably well. He has fair use of one hand. No speech defect of importance. He was graduated from State University of Iowa in June 1949, with highest distinction. That is to say in the top 1 pct of his class. He is a Phi Beta Kappa. He majored in physics, and at present has one year credit towards an M.S. degree, and is there now and expects to earn the M.S. by next June.

Every effort to interest anyone in employing him has been made, and all have failed. We have, however, a large file of letters from industry giving us good advice, and always ending with reasons why their company could not employ him, but that doubtless some other fine gentlemen would, at some indefinite time in the future. He has applied for Civil Service jobs which were listed as available. Oddly enough his applications come back either because the job applied for is not open, or because he lacks previous job experience. The first reason industry gives for denying him a chance is their insurance programs. We have said we would waive all liability on their part in writing, but that isn't enough. Further, he isn't asking for work on a machine, or on a steel mill floor.

Through the interest and efforts of the head of the Physics Dept. at S.U.I. he was offered work for three months during the summer of 1949, by the director of the research laboratory of a large radio company. The understanding was that if they were satisfied with his work, his boss would direct his further studies and ultimately give him opportunity for permanent employment. After six weeks, the head of the lab who had hired him was given peremptory orders to discharge him . . .

We questioned the head of the lab. He said he was more than pleased with the man's work. He also stated that he had not secured permission first to hire my son because he was

sure that Don would turn out all right, and if he once had him in, he would have some rebuttal to any questions that might turn up later . . . He also stated that he had been given no chance to offer any rebuttal, nor was there the slightest interest as to whether Don had done any work or its quantity or quality.

One president of a company discussed the matter twice at some length, and finally said he knew of no one in industry who might be at all interested. In his opinion, no company would be willing to take as he put it, "the responsibility." It has never been clear to me, just what this great responsibility is, or why it is insurmountable if there is a willingness to hire such a person.

Certainly I know that in industry, every one has to produce. No one expects or desires charity, but some one must give these people a chance to prove themselves at least before sentencing them to institutions where they become a burden to society and to themselves. We believe that my son and others like him can contribute to society and the world at large, but so far, industry has no inclination to help, or even be interested.

The Illinois Div. of Vocational Rehabilitation has been unable to interest anyone in hiring such people. Industry will accept a man with a single or even double amputation, or little or no sight where the applicant might be taught simple mechanical motions and where he can often be employed for a smaller wage. It has been my experience thus far, that industry will not go far beyond that point . . .

My company is a subscriber, and though I get eventually to read your magazine, it is usually quite old before it gets to me. Therefore I subscribe myself, and find it advantageous to have it delivered at home where I can read it undisturbed and before the news is two or three weeks old. I like it better than a great many other publications of its kind even though this week's editorial got under my skin.

NAME WITHHELD

Weighty Question

Sir:

Could you supply me with the following information:

- (1) What is the range of sizes and weights of a commercial ingot?
- (2) What is the range of sizes and weights of a commercial bloom?

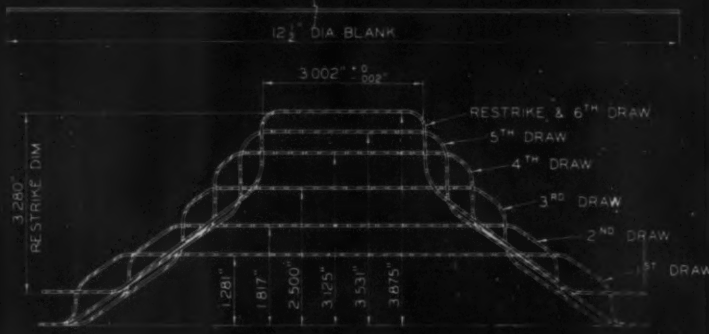
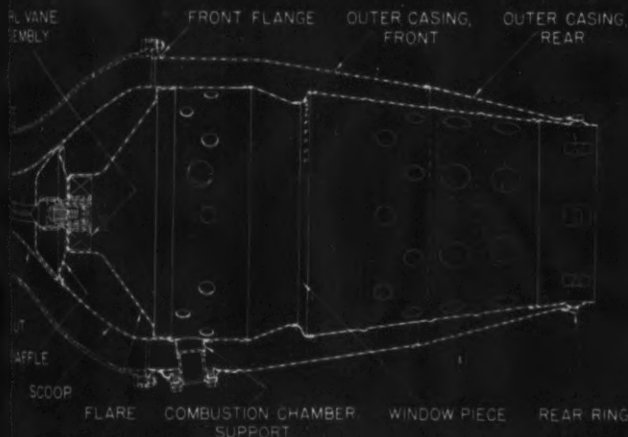
D. E. DAVIS, Chairman
Engineering Drawing Dept.
Newark College of Engineering
Newark, N. J.

There is such a broad variation in the number of sizes of commercial ingots that generalization is virtually impossible. Probably the best source of information is a booklet published by the American Iron & Steel Institute, 350 Fifth Avenue, New York 1, entitled "Survey of Mold Practice". This booklet is No. 18 of a series entitled "Contributions to the Metallurgy of Steel," published in Feb., 1948. Similar booklets are available on commercial blooms.—Ed.

Precision is paramount at PRATT & WHITNEY AIRCRAFT

LAKE ERIE
ENGINEERING CORP.
BUFFALO, N.Y. U.S.A.

Lake Erie Hydraulic Presses
help attain it in the production of
components for Turbo-Jet Engines



Cross-sectional diagram of the combustion chamber, or burner, of a JT-6 Jet Engine illustrating the assembly of stamped, deep-drawn and rolled and welded sheet-metal parts. Components of high-strength, heat-resistant stainless steel and Nimonic 75 must fit "perfectly" to permit proper assembly and dependable operation of the engine. Flexible and precise control of the hydraulic presses makes close tolerance production of deep-drawn parts possible.

One of the most interesting deep-drawn parts in the combustion chamber assembly is the flame-tube flare. This part, which is made of 0.048-inch Nimonic sheet, requires six draws each of which is followed by bright annealing. Deep-drawn parts of austenitic stainless and Nimonic are subjected to severe cold-working. Draw depth is calculated on a basis of the degree of work hardening that occurs.

Two of the principal materials used in the construction of the JT-6 "Turbo-Wasp" Jet Engine are a stainless steel of 18-8 analysis and a heat-resistant chromium-nickel-iron alloy known as Nimonic 75. Jet engine parts made from these materials are subjected to high temperatures and fatigue resulting from high velocity air flow. To stand up in service for any appreciable time and to meet the exacting requirements for mating fits in welding, the parts must be formed to extremely close tolerances. In producing components such as the flame-tube flare, flame-tube scoop, flame-tube snout, combustion chamber supports and bar sleeves, hydraulic presses in sizes up to 400-tons are employed for the deep-drawing operations. The flexibility of control that is built into hydraulic presses makes it possible to form these high-strength, heat-resistant, austenitic materials into the various components efficiently and with the utmost precision.

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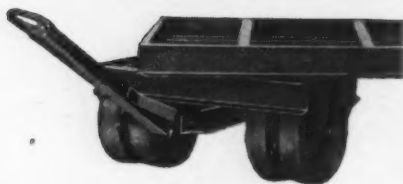
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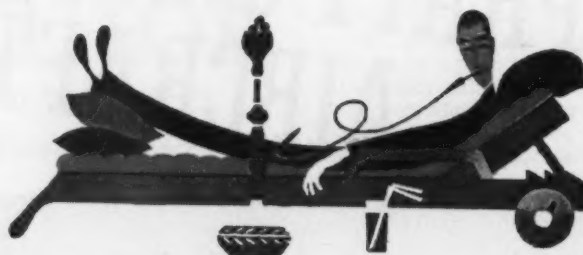
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794 Congress St., Columbus 16, O.



Fatigue Cracks

By CHARLES T. POST

Split

As we learned from sad experience a fortnight ago, the axes being marketed today are sharp instruments which should be handled only by experts.

One leading ax manufacturer maintains a slot in its promotion budget for the hire of a skilled wood chopper who travels from town to town demonstrating the temper of the tool before admiring crowds. The woodsman starts the demonstration by shaving with his ax, then proceeds to turn logs to kindling with consummate ease.

The job sounds easy, the hours are short, the pay good, and an appreciative audience is always at hand. What's more, we learned yesterday that the ax company is looking for someone to fill the vacancy. The last expert chopped off his toes.

Sincerely, Clem

If you've had a chuckle from the letters to us from Clem Caditz on his unquenched thirst for steel, you'll be interested to know the entire series has been reprinted in a black bordered little booklet entitled "Dear Charlie—Sincerely, Clem or How To Ignore the Steel Shortage." The booklet carries the complete letters, whereas we were only able to publish a few choice excerpts. If you'd like a copy, the Pressed Metal Institute, Union Commerce Building, Cleveland, may give you one if you ask real

nice and send in a 20 gage cold rolled sheet with your request.

Apronym

Being tone deaf we can't vouch for C. C. Finn's latest nominee for the Reverend and Ancient Society of Apronymists: E. LeRoy Bellows, voice consultant.

Puzzlers

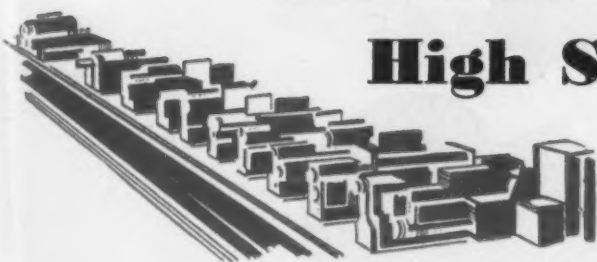
To save embarrassment we won't print the names of those who failed to recognize that the shoe store owner in Harold Huston's October 19 problem was out only \$85 and a pair of shoes. B. Lanser, Cleveland, is the first to go on record that the trip to the grocery store for change was, as Huston put it, "a red herring."

Bringing the record up-to-date, Harold J. Kandiner, U. S. Bureau of Mines, Edw. L. Hammer and John Cook, Carnegie-Illinois, and John E. Toth, Babcock & Wilcox, agreed generally on the diagonal board problem. J. S. Prifogle, Belden Mfg. Co., solved the problem of the river current, and H. Chevalier, Viroflay, Seine-et-Oise, France, came through on the wandering fly.

Oscar Quist poses this: Three balls of diameters three, four, and five rest on a horizontal plane, each ball touching the others. A plate rests on the balls. What is the plate's inclination? (We'd say the plate's inclination was to slide off, but we'll leave it to more sober minds.)

MACHINE TOOL

High Spots.



Sales
Inquiries
and Production



By W. A. LLOYD

Change in Buying—What happens when a defense program is imposed on an industry in a period of prosperity is nowhere better illustrated than in the machine tool industry this week.

With the switch from replacement buying to defense buying with priority actively under way, the machine tool industry's plight shapes up something like this:

Order backlogs in relation to shipments are already higher than the World War II peak, with more to come. The defense program is still in the initial phase. Orders are being placed in volume, with estimates of the total ranging up to \$150 million. According to reports, \$150 million has been set aside for this purpose, but in view of industry backlogs, \$75 million on extended delivery will be placed at the present time.

Manpower and Materials—Big obstacles in handling this volume of business are manpower and materials. Of the two, the manpower situation is likely to last the long-

est and be the most troublesome. The peacetime expansion of a number of other industries is costing the machine tool industry plenty of manpower.

This week the Ohio State Employment Services reported the general pattern of the labor market is going from tight to tighter. "Significant signs, without statistics, are obvious, including expansion and new plant location, rising momentum of draft and defense procurement, scouting for key men, hotel hiring and out of city ads. Spending plans for new plant and equipment have been hiked."

Contracts Hardly Tapped—"Authorized expenditures for defense contracts have hardly been tapped. Despite signs of manpower shortages ahead, there's been little relaxation of job specifications. When this happens, when length of the work week jumps, when productivity promotion for present work force gets real attention, the labor market will then be seriously tight."

Producers of machinery, electrical and non-electrical, have added 43,000 men in Ohio within the past 12 months.

As for steel, the shortage in a number of machine tool shops is acute, according to an industry spokesman. Some companies are buying tubing and sheets from Germany. According to one estimate, the machine tool industry's steel requirements, exclusive of merchant iron are 200,000 tons annually.

Priorities Needed — Priorities for materials and preference on manpower are the obvious answers

to these problems, but the managed economy which the defense program will require sooner or later has not yet reached that point.

Setting up a third shift and subcontracting for certain parts are under consideration by some segments of the industry, but until material and manpower situations are resolved, these World War II expedients will not be simple.

DO 21 Rating—Latest word on priorities is that with the exception of DO 21, DO rating should not be applied for the purchase of machine tools except by a government department. The ruling on DO 21 is that when circumstances require the application of a priority for the purchase of a machine tool for a prime contractor or a subcontractor of any degree, a government department will on occasion authorize the application of a DO 21 rating. This authorization may come from any defense department or the Atomic Energy Commission.

Department Numbers — The number that follows the initials DO indicates the department which assigned the rating to the project and for which the machine tool is required. These numbers, as assigned to date are: 01, aircraft; 02, guided missiles; 03, shops; 04, tanks—automotive; 05, weapons; 06, ammunition; 07, electronics and communications; 08, fuel and lubricants; 09, clothing and equipment; 10, transportation equipment; 11, building supplies and equipment for overseas construction; 21, miscellaneous production equipment for contractors not falling under class 22 or 98; 22, Department of Defense construction; 98, production equipment for certain private contractors.

Maintenance—An 18-point program of plant maintenance technique will be presented during the second annual Plant Maintenance Show in Public Auditorium here Jan. 15 to 18. Organization, management, inspection procedure, training of personnel, and preventive maintenance will receive general discussion in addition to studies of specialized plant maintenance work.



*it's easy
if you know how*

As versatile as stainless is, you may find it difficult to apply stainless steel to your job unless you know which stainless analysis you need. That's why Crucible, pioneers in the development of this specialty steel, makes freely available to you an alert metallurgical staff. These engineers and metallurgists can show you which stainless analysis is best suited for your application. And how Crucible Stainless can be applied for maximum satisfaction.

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...get **SIMONDS**
"TUNGSWELD"
Squaring Shears

(with the High Speed Steel Cutting Edge)

For longest cutting life between grinds, Simonds developed the "Tungsweld" method of welding High Speed Steel inlays to the tough steel backing of these Squaring Shears. This permits heat-treating after welding... assures full cutting hardness of the steel inlay, with longer cutting life.

For easier cutting, clearance is ground in the face and top edge... with accuracy and uniformity assured by special heavy grinders. The net result is a single-edge shear that outlasts other types... costs you less in down time and lost production...

and gives the utmost in clean, fast shearing of tin plate, silicon, Monel, stainless or other thin sheet metal. Order from your local SIMONDS Industrial Supply Distributor.



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PUBLICATIONS

Metals Catalog

More than 20,000 separate items which are carried in stock in seven convenient warehouses are listed in a new 272-p. catalog, thumb-indexed for easy reference. These materials are presented in a manner designed to simplify selection for the purchasing agent, the engineer, the manufacturer or plant manager. Section headings include sheets, rods, shapes; pipe, tube, valves, and fittings; fasteners; welding and brazing supplies; special products; and useful engineering data, as related to aluminum, brass, bronze, copper, Inconel, Monel, nickel and stainless steel. *Whitehead Metal Products Co., Inc.*

For free copy insert No. 1 on postcard.

Power Shears

Steelweld pivoted-blade power shears, designed to provide accurate straight cutting for long production schedules as well as to be easy to adjust for short variety runs, are described in a new 8-p. bulletin. Features that make shearing easy, fast and accurate are discussed; clearance dimensions and specifications are listed. *Cleveland Crane and Engineering Co.*

For free copy insert No. 2 on postcard.

German Newsletter

Demag, Duisburg, leading European maker of steel mill equipment, publishes a weekly newsletter containing information of interest to engineering firms and industry in general. Printed in English, the newsletter describes advances in equipment for iron and steelmaking, mining, chemical plant, harbor and transportation, public utilities

New publications that describe money saving equipment and services are available free and without obligation. Copies can be obtained by filling in the attached card and mailing it.

and bridge-building industries. In addition to supplying specific machines, the company also constructs complete plant facilities in these fields. *Kurt Orban Co., Inc., American Rep.*

For free copy insert No. 3 on postcard.

Motor Starters

A-C type H motor starters, for 2300 to 5000 v squirrel cage wound rotor and synchronous motors, are described in a new 12-p. bulletin. The booklet shows dimensions and construction of full and reduced voltage starters with either air break or oil immersed contactors, providing complete control in an attractive steel cabinet. A line of starters without power fuses is also shown. *Allis-Chalmers Mfg. Co.*

For free copy insert No. 4 on postcard.

Gives Bright Hardening

Features of the Hevi Duty Shaker Hearth furnace are presented in a new 4-p. folder describing uses, construction and operation. Details of the quench system and temperature control are explained and examples of typical bright carburizing, cyaniding and hardening jobs performed by the equipment are shown. The bulletin tells how this fully adjustable, low power cost furnace produces uniform results in a production line installation. *Hevi Duty Electric Co.*

For free copy insert No. 5 on postcard.

New Loader

The Lodover, a new 1-yd combination overhead and front-end shovel for International Harvester tractors, is described in a new 8-p. illustrated catalog. According to the catalog, the unit substantially increases loading production, because turns are eliminated, and also substantially lengthens tractor life. *Mfg. Div., Service Supply Corp.*

For free copy insert No. 6 on postcard.

Silver Brazing Data

Silver alloy brazing with Easy-Flo and Silfos is covered in a new 24-p. bulletin. This storehouse of facts and data tells where and how to use these alloys to the best advantage. It shows many interesting applications and describes fast brazing techniques, telling how to speed up production and save time. *Handy & Harman.*

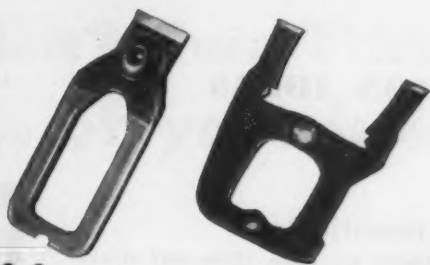
For free copy insert No. 7 on postcard.

Ball Bearings

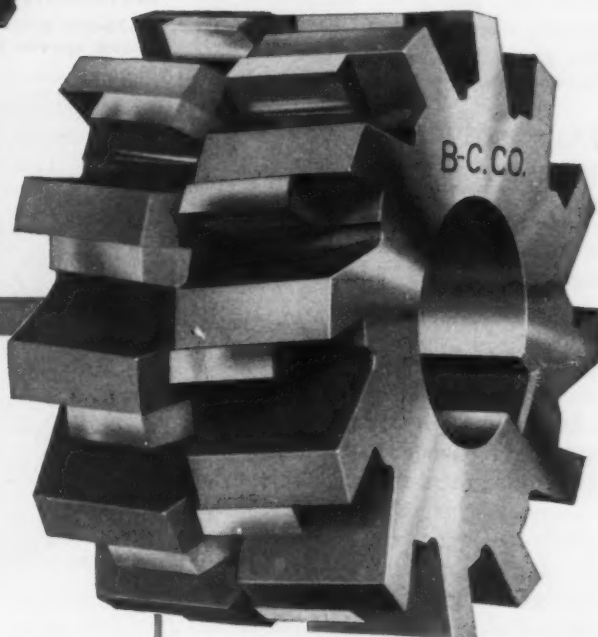
Complete descriptions, specifications and dimensions for Federal ball bearings are presented in a new 260-p. catalog detailing information on single row radial, radial thrust, sealed and self-aligning bearings, as well as other miscellaneous types. More than 90-p. of handy engineering data pertaining to bearings are included, while an-

Turn to Page 120

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SUPPLY
THE
FORM . . .**



BARBER-COLMAN
WILL FURNISH THE CUTTERS



**TO COMBINE CUTS
PROLONG TOOL LIFE
SPEED OPERATIONS
DUPLICATE ACCURACY
MAKE THE JOB EASIER**

● Special milling problems become easy when Barber-Colman Formed Milling Cutters are used for the job, because critical job features are job-engineered into the cutter design.

Cutters made to take care of these requirements save countless hours of set-up and inspection time, and result in a more profitable operation for both the operator and the department.

Barber-Colman Company manufactures all types and styles of Formed Cutters, including ground and unground, straight gash, helical gash, form-relieved and profile style. A Barber-Colman representative will be glad to discuss your requirements. Send us blueprints showing form requirements and we will furnish the proper cutters for the job.

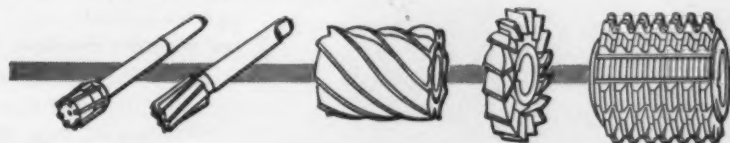


**FROM 840 TO 38,000 PIECES
PER SHARPENING; GANG-MILL
THIN SECTIONS, 12 PER LOAD**

These contact arm points must be sharp and of uniform thickness to react to sensitive movement. Surface is small and section is thin. Cutters operate at high speeds and mill 12 pieces per load. Interlocking design is used to assure sharp points and controlled dimension on thickness. Carbide-tipped teeth now produce 38,000 pieces per sharpening (against 840 formerly produced), at the rate of 3,400 pieces milled in 8 hours.

Barber-Colman Company

GENERAL OFFICES AND PLANT, 8144 LOOMIS ST., ROCKFORD, ILLINOIS, U. S. A.



**BARBER
COLMAN**

November 2, 1950

37

NEW

PRODUCTION IDEAS

Continued

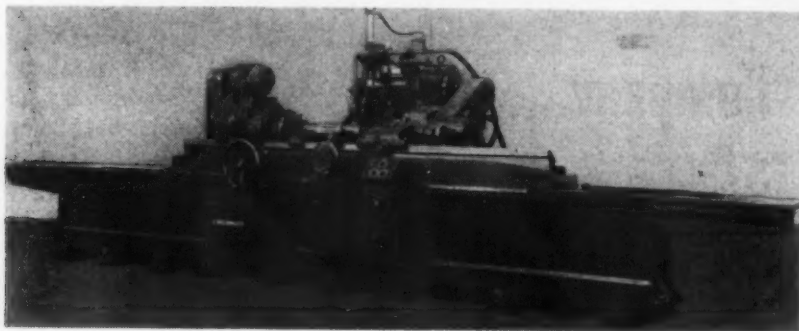
0.500 in. Gages are adjustable to size by a knurled knob at the end of the gage. *L. S. Starret Co.*
For more data insert No. 25 on postcard, p. 35.

Plain and Roll Grinders

Three new sizes round out the Cincinnati Filmatic line.

The new sizes are 16 in. heavy duty and 20 and 24 in. plain grinders, and 16, 20 and 24 in. roll grinders. The grinding wheel spindle bearings are Filmatic type. This construction consists of segments which are free to rock slightly in the housing bore, admitting wedge-shaped oil films between them and the spindle journal diameter as rotation occurs. Filmatic bearings are self-adjusting for variations in forces created by the grinding action. A dc motor, controlled electronically from an ac source, drives the table through a rack and pinion. This drive provides dial selection of an infinite number of traverse rates from 3 to 120 ipm. To eliminate shock, the table automatically accelerates and decelerates at table reversal. Coolant flow and headstock spindle rotation automatically start and stop with the table traverse, or independently, as desired. The headstock is a dead spindle, dc motor-driven unit, with a speed range of 20 to 72 rpm for the 16-in. size, and 15 or 54 rpm for the 20 and 24-in. sizes. Plain machines are built in seven lengths at 2-ft intervals, from 48 to 192 in.; the roll grinder style is built in the same length up to 168 in. *Cincinnati Grinders, Inc.*

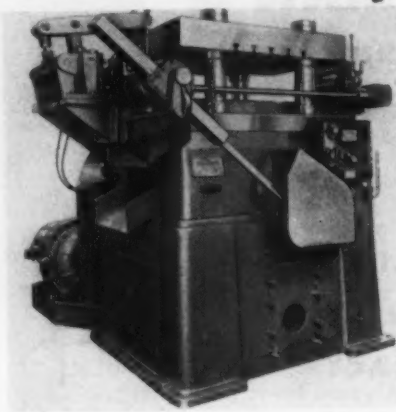
For more data insert No. 26 on postcard, p. 35.



Automatic Press

175-ton press has 10-in. max stroke, with speeds to 250 strokes per min.

This new wide bed press is built to JIC standards including T slots in the top platen and complete remote control of the variable speed



drive. Die clearance is 28 in. from front to back x 60 in. from right to left. The roll feeds have a 3-in. vertical adjustment and take material up to 18 in. wide. The scrap cutter has a 1-in. horizontal adjustment. Pitch adjustment of the roll feeds ranges from 0 to 12 in. A remote pushbutton control panel gives the operator complete control of the press. *Brandes Press Co.*

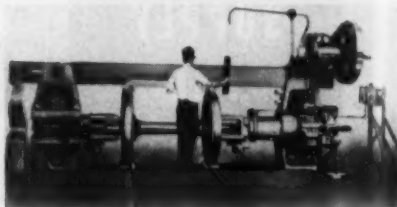
For more data insert No. 27 on postcard, p. 35.

Car Wheel Mounting Press

One man can mount and gage wheels from the same station.

A new car wheel production mounting press features centralized electrical pushbutton controls, by means of which all the operations necessary to press MCB standard car wheels on their axles

can be handled by a single operator. The electrical controls provide for the operation of the press



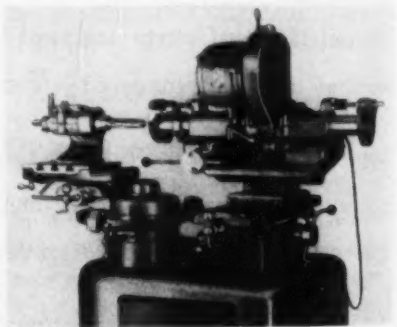
ram, control the positioning of the stops in the yokes, and operate the pneumatic kick-out cylinder in the resistance beam to push the completed assembly free of the yoke for rapid removal from the press. *Chambersburg Engineering Co.*

For more data insert No. 28 on postcard, p. 35.

Cutter-Radius Grinder

Sharpens a wide variety of stock and special cutting tools.

Simplicity of design makes this Pratt & Whitney cutter and radius grinder quick to set up and easy to use. Longitudinal slides and cross slides on both the work holding unit and the main spindle assembly, plus a vertical slide on the latter, provide exceptional maneuverability. All movements are



governed by positive stops and locks. Provisions are made for conventional straight and spiral teeth, and for the various combinations of radii, angles and spirals encountered in die and mold making cutters. The R-6 model has a flute length capacity of 4½ in., and the R-8 will accept flutes up to 10 in. long. *Pratt & Whitney, Div. Niles-Bement-Pond Co.*

For more data insert No. 29 on postcard, p. 35.

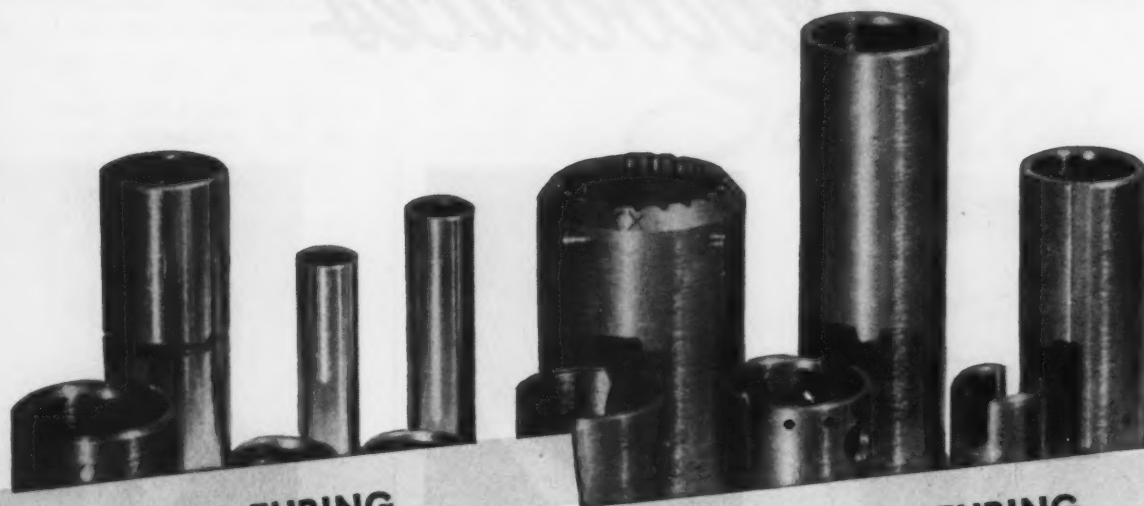
Laboratory Furnace

Has temperature range up to 850°F and accurate maximum heat control.

In a new laboratory furnace, the application of cross flow convection

Turn to Page 124

In a rush? Two TIMKEN® steels will do 90% of your hollow-parts jobs!



52100 TUBING

101 STOCK SIZES

HIGH CARBON CHROME STEEL—A DIRECT-QUENCHING STEEL WHICH GIVES THROUGH HARDNESS IN MODERATE SECTIONS.

Typical applications:

aircraft parts
slitter knives
bearing races
pump parts and
plungers

collets
bushings
spindles
grinding machines
precision instruments

"NICKEL-MOLY" TUBING

52 STOCK SIZES

LOW CARBON NICKEL-MOLY STEEL—A CARBURIZING STEEL WHICH GIVES HIGH SURFACE HARDNESS WITH A TOUGH CORE.

Typical applications:

piston pins
bearing races
farm equipment
knitting machinery

sleeves
bushings
pump parts
performing guns

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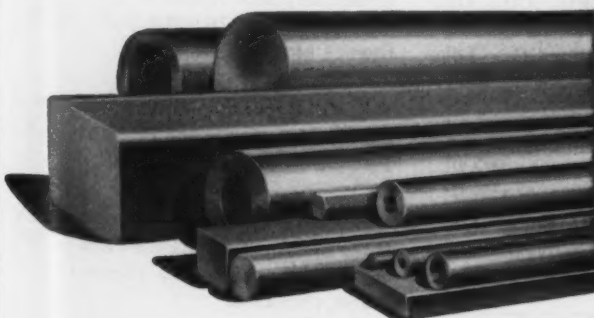
WHEN rush jobs call for a little tubing in a big hurry, get in touch with Timken®. Warehouse lots of Timken 52100 tubing and Timken "Nickel-Moly" tubing can be shipped to you within 24 hours after receipt of order.

These two general purpose steels have good hardenability and wear resistance. They'll do 9 out of 10 of your hollow-parts jobs. Timken 52100 steel can be heat treated to file hardness and tempered back to any point you want. It has through hardenability in moderate sections.

Timken "Nickel-Moly" is a fine-grained, carburizing steel that develops exceptional shock-absorbing qualities when heat treated.

You can depend on uniform, high quality in every shipment, too. The Timken Roller Bearing Company maintains complete, rigid quality control through every step of manufacture. For the latest information on available sizes, grades and finishes, write for stock lists. The Timken Roller Bearing Company, Steel and Tube Division, Canton 6, Ohio. Cable address: "TIMROSCO".

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and Seamless Tubes

Specialists in alloy steel—including hot rolled and cold finished alloy steel bars—a complete range of stainless, graphitic and standard tool analyses—and alloy and stainless seamless steel tubing.

November 2, 1950

Iron Age *Introduces*



HORACE Y. BASSETT, elected to the board of directors, Calumet & Hecla Consolidated Copper Co., Detroit.



JAMES F. BREHM, elected president of Frederick Hart & Co., Inc., Poughkeepsie, N. Y.



WILLIAM T. KELLY, JR., appointed president, American Brakeblok Div., of the American Brake Shoe Co., New York.

Colonel Willard F. Rockwell, named to the board of directors and executive committee for E. W. BLISS CO., Toledo. Lucien R. Collard, elected secretary and treasurer, and will be located at the Canton, Ohio, office.

Fred J. Walters, vice-president, named defense coordinator for HOT-POINT, INC., Chicago. Edward R. Taylor, promoted to the post of general sales manager and John F. McDaniel, previously assistant sales manager, will succeed Mr. Taylor as sales manager.

M. O. Land, elected president of the WALKER MFG. & SALES CORP., St. Joseph, Mo. W. J. Barnes, named vice-president; R. L. Douglas, secretary; and Lakin Meade, treasurer.

Seymour J. Sindeband, formerly technical director of American Electro Metal Corp., elected executive vice-president of the MERCAST CORP., New York.

Rollin B. Plumb, formerly vice-president in charge of sales for the Eagle Lock Co., Terryville, Conn., has joined RUSSELL, BURDSALL & WARD BOLT AND NUT CO., Port Chester, N. Y.

M. E. Puyans and Richard McAvoy, elected vice-presidents of GREAT LAKES CARBON CORP., New York. In addition to their new responsibilities, Messrs. Puyans and McAvoy will continue to serve as treasurer and general counsel, respectively.

John Hellstrom, vice-president of the AMERICAN AIR FILTER CO., Louisville, Ky., will manage the newly created Pacific Div., with headquarters in San Francisco.

Hobart A. Green, formerly vice-president in charge of sales, named president of ROYAL METAL MFG. CO., Chicago, and the DE LUXE METAL FURNITURE CO., Warren, Pa. Joseph K. Salomon, elected president of two Royal subsidiaries, the ROYAL METAL MFG. CO., OF CALIFORNIA, and the HUDSON BEAUTY FURNITURE CO., Los Angeles.

Roger H. Brown, named eastern sales manager, ICB Div., for the WARNER ELECTRIC BRAKE & CLUTCH CO., Beloit, Wis. R. C. Wiard and W. E. Gregg will handle New York sales, with headquarters in Middletown, Conn.

Ralph S. Euler, elected to the board of directors of ALLEGHENY LUDLUM STEEL CORP., Pittsburgh.

St. Clair M. Smith, appointed assistant treasurer for the GLIDDEN CO., Cleveland.

F. J. Haller, named manager of the Michigan Mines for the CLEVELAND-CLIFFS IRON CO., Cleveland. James S. Westwater, formerly superintendent of the Mather Mine B shaft, will succeed Mr. Haller as superintendent of the Mather Mine. C. W. Allen, appointed general manager of the mining dept. to succeed C. J. Stakel who recently retired.

D. E. Reichelderfer, elected controller, and Fred L. Winslow, assistant controller, for ARMCO DRAINAGE & METAL PRODUCTS, INC., Middletown, Ohio.

R. G. Burnham, named director of purchases for the STANDARD PRODUCTS CO., Cleveland.

H. Sturgis Potter, appointed general sales manager, CARPENTER STEEL CO., Reading, Pa., to succeed R. V. Mann, deceased.

Alfred T. Duff, appointed tin mill div. superintendent, Gary Sheet and Tin Mill, for the **CARNEGIE-ILLINOIS STEEL CORP.**, Gary, Ind.

John F. Byrne, appointed associate director of research, Communications and Electronics Div. for **MOTOROLA, INC.**, Chicago.

R. H. Dugan, named general agent, Freight Dept., Milwaukee, for the **WABASH RAILROAD CO.**, St. Louis, to succeed **D. J. Rochford**, promoted to assistant general freight agent at Buffalo.

Herbert W. Roushkolb, appointed district manager, Detroit, for the **CLEVELAND AUTOMATIC MACHINE CO.**, Cleveland.

J. Edmund Savage, retired from the Advertising and Sales Promotion Divs., Apparatus Dept., **GENERAL ELECTRIC CO.**, Schenectady. **Warren D. O'Neal** will succeed Mr. Savage as manager of the Production Div. **C. Kenneth Emery** will replace Mr. O'Neal as manager of the Technical Publications Div.

Alfred E. Emms, plant superintendent for the **ACHESON COLLOIDS CORP.**, Port Huron, Mich., has retired after 47 years with the firm.

George P. Maurer, named assistant chief engineer, Gear Technology, for the **FALK CORP.**, Milwaukee. **W. Stephen Richardson**, appointed assistant chief engineer, Applications and Special Products; and **Edward J. Wellauer**, assistant chief engineer, Materials and Research.

J. W. Greene, appointed to the newly created post of assistant manager, Valve & Fitting Dept., for the **CRANE CO.**, Chicago.

J. M. Schiavetti, elected vice-president in charge of production for the **GEROTOR MAY CORP.**, Baltimore. Mr. Schiavetti was formerly purchasing agent for the firm.

Joseph Salamone, named assistant general manager of sales for the **American-Standard Corp.**, Pittsburgh. **John K. Glessner**, promoted to manager of the hospital, hotel, marine, and railroad products dept., and **Myron Shroads**, made manager of the quotation dept.

Shannon C. Powers, appointed general sales manager, **RUSSELL ELECTRIC CO.**, Chicago.

Iron Age *Salutes*

JOHN E. GOBLE

HE can be tough when he has to; but he doesn't believe in it, and doesn't often find it necessary. He operates under the philosophy that no one man can run a large corporation and run it well.

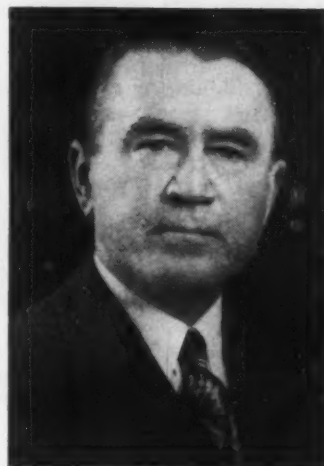
As president of National Tube Co., he delegates authority and responsibility to the men who run the various departments. But he insists on keeping the lines of communication open from the top of the company to the bottom, and between departments.

He believes in frankness between himself and the men who work for him and insists that his men be as frank with one another. The result is cooperation among his staff on a friendly, sympathetic basis.

When the Treasury Dept. asked John Goble to cooperate in the United States savings bond drive, he was quick to see the advantages to his employees and to the nation. He didn't just give permission for the drive; he got behind it and pushed. He made a personal plea to all employees, arranged for publicity and advertising, and set up a detailed organization exploiting existing communication channels in the company.

He did all this because he believes buying bonds gives his workers a chance to help fight inflation while investing in their own future and that of their government. He was also influenced by the fact that this is a *free* method of saving. It is based on freedom of choice, not on mandatory controls.

It is not surprising that National Tube Co. has marked up the



best record of all metalworking firms conducting savings bond drives. When National Tube's bond drive got under way June 23, only 27.9 pct of its employees were buying bonds through payroll deductions. By the time the campaign ended Aug. 11, participation had increased to 80.6 pct of all employees.

John Goble started out as a roustabout in the Texas oil fields in 1913 when he was 18. So he knows the oil business from the bottom up. He got into steel through Oil Well Supply Co. After 4 years in Venezuela as sales representative, he held positions in the company's export division. He was made vice-president in charge of sales of National Tube in 1936 and was elected president Aug. 1, 1946.

John admits to two weaknesses—hunting and fishing. Although his work keeps him from doing as much of these things as he would like, he's out in the field every time he gets the chance.



DR. FRANKLIN STRAIN, appointed acting director of research, Columbia Chemical Div., for the Pittsburgh Plate Glass Co., Pittsburgh.



HARMON S. EBERHARD, named executive vice-president for the Caterpillar Tractor Co., Peoria, Ill.



THOMAS W. HUNTER, named assistant general superintendent, Irvin Works, for the Carnegie-Illinois Steel Corp., Dravosburg, Pa.

Thomas E. Skilling, appointed Pittsburgh district sales engineer for **EDWARD VALVES, INC.**, East Chicago, Ind.

John C. Ruf, Philadelphia district sales manager for the **OHIO INJECTOR CO.**, Wadsworth, Ohio, has retired. **Paul E. Warner** will succeed him in the Philadelphia post.

Kenneth Fox, appointed sales application engineer for the **KINNEY MFG. CO.**, Boston.

W. F. Boore, named credit manager for the **NICHOLAS WIRE & ALUMINUM CO.**, Davenport, Iowa. Prior to his retirement in June, 1950, Mr. Boore had been associated with the Pittsburgh Steel Co.

Robert J. Reidy, named sales representative, Automotive, Aviation and Government Div., for the **B. F. GOODRICH CO.**, Milwaukee. Mr. Reidy succeeds **Albert B. Goering**, who recently retired.

R. H. Keck, appointed chief engineer for the **AURORA METAL CO.**, Aurora, Ill. **W. R. Baughman**, named sales manager and **J. W. Lauder**, metallurgist.

William H. Morse, appointed manager, ac mechanical engineering section, Transportation and Generator Div., **WESTINGHOUSE ELECTRIC CORP.**, at East Pittsburgh.

Russell Stark, appointed director of purchases by the **BURROUGHS ADDING MACHINE CO.**, Detroit. Mr. Stark will supervise procurement of materials for all Burroughs plants and subsidiaries.

Charles R. Schmitt, appointed superintendent of the hot strip mill, Midland Works, for **CRUCIBLE STEEL CO. OF AMERICA**, New York. **Stephen M. Trbovich**, named assistant superintendent of the hot strip mill.

J. A. Holloway, appointed assistant manager, Tin Plate Sales Div., **WHEELING STEEL CORP.**, Wheeling, W. Va. **R. L. Fleming** will succeed Mr. Holloway as head of Cut Nail Sales.

Charles H. Cox, Jr., appointed purchasing agent for the **SYNTHANE CORP.**, Oaks, Pa. Mr. Cox succeeds **Samuel M. Fox**, who recently retired.

R. H. Weigel, named to the staff of the **NATIONAL RADIATOR CO.**, Johnstown, Pa., as a senior research engineer.

Walter C. Bladin, named sales representative for the Chicago area, Dresser Mfg. Div., of **DRESSER INDUSTRIES, INC.**, Bradford, Pa.

A. H. Engstrom, named as acting engineering manager for American Hammered Piston Rings manufactured by the Metal Products Div. of the **KOPPERS CO., INC.**, Pittsburgh. Mr. Engstrom succeeds **Dr. Tracy Jarrett** who recently resigned.

Kenneth T. Gordon, made purchasing agent for the **OKONITE CO.**, Passaic, N. J. He will also direct purchases for the company's Hazard Insulated Wire Works Div., Wilkes-Barre, Pa. **John L. Fabiny**, previously in charge of metals and chemical purchases, named assistant purchasing agent. Mr. Fabiny has been with the company for 25 years.

George W. Parkin, appointed assistant sales manager, Automotive Div., for **NATIONAL AUTOMOTIVE FIBRES, INC.**, Detroit.

John M. Dooley, named sales representative for eastern Tennessee for the **NATIONAL RADIATOR CO.**, Johnstown, Pa.

John G. Holschuh, promoted to manager of ES-nail sales for the **ELASTIC STOP NUT CORP. OF AMERICA**, Union, N. J. Mr. Holschuh is succeeding **Ken Davis**, who was recently appointed district manager of the Chicago office.

E. C. Drew, named purchasing agent, and **H. J. Forth**, named assistant to the purchasing agent, Alkali Section, Solvay Process Div., for **ALLIED CHEMICAL & DYE CORP.**, New York.

Joseph E. Adams, named director of purchasing and planning for the **WHITE MOTOR CO.**, Cleveland.

Arnold S. Rose, formerly of the RCA Victor Div., has joined the Special Products Div. of the **ITE CIRCUIT BREAKER CO.**, Philadelphia, as head of its research and development laboratory.

Bruce Smith, former chief engineer, Airplane Div., appointed director of engineering for the **RYAN AERONAUTICAL CO.**, San Diego, Calif. **W. T. Immenschuh**, promoted to executive engineer.

Edgar A. Reiss, formerly manufacturing engineer, named manager of manufacturing, Wire and Cable Div., Bridgeport, Conn., for the **GENERAL ELECTRIC CO.**, Schenectady.

* REVERE
COPPER AND
BRASS HELPS
keep TV
Sales Hot
FOR
CROSLEY

...makes
Cabinets
Cool and
Classy



The newest Crosley Television Cabinets are striking examples of how copper and brass can be used to give products sales appeal as well as serve a utilitarian purpose.

All models, two of which are shown above, are equipped with gleaming bezels which frame the television screens. They are made for the Crosley Corporation from Revere 90-10 Commercial Bronze. The table model shown is equipped with two control escutcheons drawn from this same metal by the Rex Engineering Company, Cincinnati, Ohio. The table model also has two strips of .0016" Revere Soft Copper of 5½" width on the under side of the top of the cabinet. This acts as an insulator by conducting any heat generated, away from the wooden cabinets. For, although copper is the best heat conductor of the commercial metals, when highly polished it dissipates rather than absorbs heat.

Note on the console model, shown above, how the three Revere Brass Tubes add a touch of luxury and richness to the cabinet.

Perhaps Revere Copper or Brass or one of its other metals or alloys can help in the development and improvement of your product. Why not call the nearest Revere Sales Office and see?

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COPPER AND BRASS INCORPORATED

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*Mills: Baltimore, Md.; Chicago, Ill.; Detroit, Mich.; Los Angeles and
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Sales Offices in Principal Cities, Distributors Everywhere

November 2, 1950

On the ASSEMBLY LINE

AUTOMOTIVE NEWS AND OPINIONS

Detroit SAE hears plan to convert 700,000 sq ft Gerity plant into proving ground for industry . . . Program involves hydraulic presses . . . Cost set at \$200 million.



By **WALTER G. PATTON**

Industry's Proving Ground—Huge hydraulic presses, bigger than those used in Germany during World War II, will speed up U. S. aircraft output. They may also pave the way for important cost-cutting in the production of truck and railway parts, railroad car wheels, connecting rods, large valves, shell casings and truck frames and panels.

Last week more than 1000 members of the Detroit Section SAE heard Lt. Gen. K. B. Wolfe, Deputy Chief of Staff, Material Headquarters, U. S. Army Air Force and Edwin Loewy, president of Hydro-press, Inc., explain a plan being worked out jointly with the Gerity-Michigan Mfg. Co., Adrian, for converting the 700,000 sq ft

Gerity plant into a manufacturing proving ground for all U. S. industry. Three German presses ranging from 6000 to 7000 tons are already installed. Under construction and scheduled to be completed early in 1951 is a 15,000 ton press.

See Increased Demand—A much greater demand for large hydraulic presses is seen as one result of the work being done at Adrian. At the SAE meeting, Gen. Wolfe revealed that the Air Force is purchasing 25 very large hydraulic presses to form parts of light metal and steel.

Through the use of such large presses huge economics in materials, manhours and reduced costs are possible. The entire press program is expected to cost \$200 million. Through the use of techniques to be developed at the new pilot plant at Adrian, much of the present machining, joining and assembly required in aircraft production will be eliminated.

Economy of Time—An example: production of a magnesium engine mount on a 5000 ton press required 228 sec of forging time. On an 11,000 ton press the same part was produced in 6 sec. The centerpiece of a fighter plane required 20 steel components plus rivets. Using high pressure forging techniques only 5 parts plus

rivets were required. Weight of the assembly was reduced 8 pct.

Cooperate With Industry—Other big press possibilities to be investigated at Adrian are (1) multiple dies, (2) effect of forging pressure on fatigue strength of light metals, (3) potential reduction in manhours due to less machining and assembly time, (4) reduction in demand for critical materials, (5) possible elimination of many specialized machine tools.

Setting up a manufacturing pilot plant represents an important step forward in establishing improved co-operation between the Air Force and industry. Practically every auto industry production chief attended the Adrian meeting. Although 25 presses will be purchased, only two will be installed at Adrian.

Presses for Production —The other 23 presses will be delivered to industry for actual production work. The Adrian facilities will be used only to develop new production techniques. The press program, being negotiated with the approval of the National Resources Board, will be completed in 18 to 24 months. Included is a 75,000 ton press—more than twice as big as the 30,000 ton press the Russians hurried out of Germany after the war and are now using. One important contribution of

the Adrian program has already been announced: the Air Force is now able to produce hollow airplane propellers by an extrusion method worked out jointly with staff engineers from Ford Motor Co.

Machine Tool Clash? — DO orders have not seriously affected machine tool activities in Detroit up to the present time. However, the number of orders carrying DO ratings is increasing. It seems only a matter of time until automotive tooling requirements and government contracts clash over the right to use available machine tool space.

Among government contracts involved up to the present time are the new Cadillac Tank, Continental Engine, GM Diesel and Allison Div. of General Motors. How soon new auto engine tooling programs will be affected by the rearmament program is anybody's guess.

Chrysler Program Rolls — The new engine program for Chrysler's Jefferson plant continues to roll. In recent weeks, however, Chrysler has been placing increased emphasis on orders for its new Indianapolis transmission plant. This plant is scheduled to begin operations in June of next year. Deliveries of equipment as late as May have been reported.

Effects of Lower Octane — The ultimate effect of restrictions on high octane gasoline is yet to be determined. In addition to slowing up plans for new high compression engines, there may be a slowdown in automatic transmission developments.

Machine Tool Log-Jam — The log-jam in Detroit's machine tool industries continues. Several suppliers have indicated that deliveries are falling 60 to 90 days behind schedule. The critical materials situation plus increased pressure from rearmament is expected to push back industrial tooling deliveries still further.

Simultaneously, there is no ap-

parent letdown in the demand by tool shops for new machine tools. This is in addition to the heavy requirements of automobile producers who are retooling for new engines or new transmissions.

New Engine for K-F? — There are indications that Kaiser-Frazer may be thinking seriously about an overhead valve inline 6-cylinder engine. As in the case of other automobile producers, the engine is reported to be a high compression type. When and if the new engine program is undertaken, the new powerplant will be built at K-F's Jefferson Ave. plant.

Government Orders — Among the U. S. Government contracts awarded during the week ended Oct. 18 the following were to automotive concerns: Willys-Overland, Toledo, 13,762 quarter ton utility trucks and 20,730 engine assemblies with a total value of \$39 million; Chrysler Corp., 26,459 axles, differentials and carrier assemblies, valued at \$5,213,064; Great

Lakes Steel Corp., 3200 Quonset Huts costing \$7,528,640.

Ships and Autos—Kaiser-Frazer has been authorized by its stockholders to build ships as well as automobiles. Edgar Kaiser, president of K-F, has emphasized the company has made no contract nor commitment with the government to build or design ships. At present development work is being conducted entirely on the company's own initiative. Shipbuilding will not interfere with K-F's automobile business, Kaiser emphasized.

Exports Down—Exports of American motor vehicles and parts dropped sharply for the first half of 1950 compared with the same period last year, Census Bureau reports reveal.

Exports for the first half of 1950 were: passenger cars, 50,000; trucks and busses, 56,400; parts (assembly and replacement), \$123 million.

THE BULL OF THE WOODS

By J. R. Williams



How do you want your **WOLVERINE TRUFIN***

All Copper Alloy?

**or Copper Lined
with Integral,
Aluminum Fins?**

Both are made by the same Wolverine patented process and have fins integral with the tube—which means that the fins cannot come off or even become loosened by vibration or temperature changes. The fins are part of the tube itself; they are extruded from the solid tube.

Both kinds of Trufin are available in all popular sizes and fin spacings.

Each type has its own specific purpose. Its use depends on the characteristic of the fluid or gas you pass through it on the inside or over it on the outside.

In the case of the new bi-metal Trufin, for instance, you have the advantage of a corrosion resistant liner (copper or other alloy) with the light weight of aluminum fins—giving you a combination of extremely high efficiency in performance and a substantial saving in cost.

Our Engineering Department can help you with the choice of finned tube that will assure the best results in operating heat exchangers or other similar units.

We have booklets that give much valuable information regarding what to expect from certain installations and from finned tubes made of one metal alone or two in combination. If you want copies, please request them on your stationery.

*REG. U.S. PAT. OFF.

*Wolverine Trufin and Wolverine
Spun End Process available in
Canada through the Unifin Tube
Co., London, Ontario.*

WOLVERINE TUBE DIVISION

Calumet & Hecla Consolidated Copper Company
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WEST COAST PROGRESS REPORT

Digest of Far West Industrial Activity—By R. T. REINHARDT



Another Furnace Goes On—

Cross-hauling and back-hauling of ingots and blooms is becoming more common everyday. Geneva Steel, Utah, has been getting ingots from C. F. & I. in Colorado and from its sister steel corporation subsidiary at Pittsburg, Calif. and now Kaiser Steel Corp. is buying ingots made in Seattle by the Isaacson Iron Works.

Isaacson recently reopened on a steady operating basis one of its electric furnaces at Plant 2 and is producing approximately 1500 tons of steel per month. At present there are no plans to operate the second electric furnace in the plant which with its mate had been operating only at intervals since the end of the war. Isaacson has no rolling mill and because of high freight rates has not been actively looking for ingot work.

Foundries Need Manpower—

Pacific Northwest foundries experienced erratic business during the past 5 or 6 years and consequently had no need to develop moulders or core makers. They are now finding these craftsmen scarce. During the postwar slump many of these foundry workers went into other work.

The general complaint in regard to the labor market in the Pacific Northwest is that the manpower barrel is being scraped rather deeply and quality of applicants is reportedly down.

Magnesium for Mead—There is continuing evidence that the plant near Mead, Wash., which produced magnesium during World War II is to be reopened. A portion of the plant is now producing ferro-silicon for the steel industry and in the event magnesium is produced in adjacent facilities, in all probability the entire output of the ferro-silicon furnaces will be turned to production of the lighter metal.

Pacific Northwest Alloys now operating the electric furnaces has been reported as a possible operator of the magnesium unit, as has the Electro Metallurgical Co. which operated the plant during the last war, and Dow Chemical Co.

Gilmore Expands — Gilmore Steel & Supply Co., San Francisco, has bought the equipment and facilities of the Moore-West Shipyards on the 35-acre site in the East Bay from the General Services Administration for approximately \$1,500,000.

W. G. Gilmore, president of the company and a principal in the Oregon Steel Rolling Mills at Portland, states that the operation of the newly acquired property will about double the company's current payroll of 600 men. Negotiations are underway with the Western Pacific Railroad to lease the land on which the facilities are located.

Uranium Incentive — Uranium mining in the Marysvale district of Utah was given a shot in the arm last week when the Atomic Energy


Commission agreed to purchase development ore with as little as 0.10 pct uranium oxide, provided the deliveries average 0.15 pct. Previously the minimum acceptable grade was 0.20 pct with deliveries averaging 0.30 pct.

Still More Power — Within 2 years the Moss Landing, Calif., steam-electric generating plant of the Pacific Gas & Electric Co. will be producing one-third more electricity than all of the turbines at Shasta Dam.

A \$30 million expansion of the plant is underway which will involve the installation of two 134,000 hp generating units which will bring the total capacity up to 670,000 hp making it the largest single power plant in California and the largest such plant west of the Mississippi.

Fifth Unit for Fall—One unit of the plant has been in operation since last April and the second and third units are scheduled to be placed in service this winter. The fourth unit will be completed in the summer of 1952 and the fifth in the fall of that year.

The Contra-Costa plant, a twin of the Moss Landing design, is scheduled for completion this summer and ultimately in 1953 will have a capacity of 536,000 hp. These developments indicate a continuing trend of western utilities to favor steam generating plants over hydro plants in this area of uncertain run-off.



30% FEWER REJECTS*

because Texaco Cleartex Cutting
Oil assures BETTER FINISH

THE job was machining a small pinion gear. The most important operation was drilling a .040" hole, which had to be reamed and held to a plus or minus .0002". Rejects were running high until, on the recommendation of a Texaco Lubrication Engineer, *Texaco Cleartex Cutting Oil* replaced the competitive oil formerly used.

An immediate improvement in finish was noted (as shown by smoother operation of the finished part) and rejects dropped off 30%. Further savings resulted from the fact that *Texaco Cleartex Cutting Oil* serves a dual purpose—being machine lubricant

as well as cutting coolant.

Texaco Cleartex Cutting Oil is only one of a complete line of Texaco Cutting, Grinding and Soluble Oils that can help you do all your machining jobs—small or large—better, faster, and at lower cost... increase production and reduce unit costs.

A Texaco Lubrication Engineer—a specialist in metal working—will gladly work with you. Just call the nearest of the more than 2,000 Texaco Wholesale Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

* Name of this Texaco user on request



TEXACO CUTTING, GRINDING AND SOLUBLE OILS FOR FASTER MACHINING

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.



THE FEDERAL VIEW

THIS WEEK IN WASHINGTON

Stockpile Cuts Production—The upcoming 20 to 30 pct cut in the usage of nickel, copper and aluminum by the consumer durable goods industries is not the result of increased military production but of current and projected large-scale diversion of these materials to the strategic stockpile.

Military production alone would not cut into these materials to this extent before mid-1951. The same is true for cobalt which may be cut off from civilian users entirely, since defense and stockpile requirements are greater than the total available supply. These cutbacks will probably be in effect by Dec. 1.

NSRB Pushes Increase — Why the sudden upsurge in stockpiling? The primary reason appears to be to further the authority of W. Stuart Symington, Chairman of the National Security Resources Board. When Mr. Symington took over the NSRB the lag in the stockpiling program was a natural for him.

Disregarding effects on employment or production, Mr. Symington is reported determined to complete the 5-year stockpile program by 1952, original target date. It is now about a year behind. With the backing of the White House, he might well succeed, despite objections of the Commerce Dept. and the Munitions Board. NSRB has done nothing to remove the stigma from the Munitions Board as the agency responsible for the lag in the program, although the actual blame, if any, lies with the Budget Bureau which at the outset did not approve requests for stockpile appropriations. During the first 2 years, Congress further cut the fund requests.

Capacity Report — Mr. Symington is playing the same game in

By EUGENE J. HARDY



regard to steel-producing capacity. The NSRB chief has stated he will make no statement on steel capacity until he sees the steel report of the Preparedness Subcommittee of the Senate Armed Services Committee.

Reports indicate a deal underway here might result in the steel report saying what Mr. Symington wants, permitting him to claim he is following the will of Congress in pushing for more steel capacity.

Aluminum Needs — Aluminum capacity should be boosted by 2 billion pounds a year. This is another view held by Mr. Symington. Indications are that if the Administration proceeds with plans involving new weapons this amount would not be out of line, but if strategic thinking changes it will be almost ludicrous.

These issues could make Mr. Symington a national figure, of almost heroic proportions, provided the United States continues to find places to fight or the public supports an ever-increasing defense load without a shooting war. If not, he will fall flat on his face and probably be less missed around Washington than the recently-departed Louis Johnson.

Mining Queries High—The Interior Dept. is readying machinery for handling inquiries and requests for production loans for exploration

and development of mining projects. Officials are receiving letters at the rate of a hundred or so a week from people who think they have ore property or from individuals and firms wanting help for reopening or expanding existing mines.

The procedure, when worked out, will probably be for all such requests to come to the proper field office for investigation and checking. After study of the field reports, those appearing to have reasonable justification for help will be then turned over to the RFC for consideration for a possible production loan. On the basis of letters received thus far, officials expect the percentage of actual loans to be low.

Trailers Want Metal—Tip-off on how far the allocations and priority program might spread will come from action taken by the Defense Transportation Administration in response to the truck-trailer industry's request for consideration once the freight car program gets rolling.

The trailer manufacturers will be the first segment of the automotive industry to present DTA with a complete bill of materials, covering steel, aluminum and copper needs through 1951. DTA is the claimant agency for all automotive products and would have to o.k. the trailer industry's request before NPA could act.

UNIVERSITY OF MICHIGAN LIBRARIES

at mid-century:

a look at the first fifty years . . . a pledge for the ones to come



A few short years before the beginning of the twentieth century . . . in an atmosphere of national economic distress . . . Inland Steel got its start in life. With \$65,000 in hand, the infant set out to make its way in midwestern industry. Its aim: to make steel the way steel users wanted it, at a fair price, and on a fast schedule.

The Midwest grew and Inland grew with it. After two world wars and an unprecedented depression, Inland is still growing. Today, in this perplexing state of "warm war," additional ingot capacity is under-

way. By 1952, we will have 45% more capacity than we had before World War II.

Yet, even with increased rates of production, the war-stimulated demand often presses beyond our ability to give the kind of service you have come to expect from Inland. We will continue to exploit every practical device and method to get the steel you need to your plants as fast as possible.

We'll continue to shoot at the same target during the next 50 years—*steel . . . the way you want it when you need it.*

	Inland in 1900	Inland in 1950
Ingot capacity:	none*	3,750,000 tons
Tons of finished products shipped:	23,000	3,200,000
Total assets:	\$435,000	\$325,000,000
Number of employees:	250	25,000
Investment per employee:	\$1,740	\$13,000
Annual Payroll:	\$142,000	\$96,000,000
Average annual wage:	\$570	\$3,840

(All figures are approximate)

PRODUCTS MANUFACTURED:

1900

Bars, Harrow teeth,
Plow beams, Fence posts

*First open hearth furnace
installed in 1902.

1950

Hot rolled sheets and strip, Cold rolled sheets and strip, Enameling iron sheets, Electrical sheets, Galvanized sheet products, Hot dipped tin plate, Electrolytic tin plate, Black plate, Plates, 4-WAY Safety Plate, Bars, HI-BOND reinforcing bars, Structural shapes, Sheet piling, Fence posts, Sign posts, Rails, Joint bars, Tie plates, Track spikes, Pig Iron, Coal chemicals, Special steels.



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Die Cost Cut By Tool Shop Foundry



By **WALTER G. PATTON**

Detroit Editor,
THE IRON AGE

Allied Products has added a zinc alloy foundry to its tool and die shop. The low cost dies produced here are used for die design tryouts on difficult stampings before permanent tooling is considered. They are also ideal for short or experimental runs.

RICHARD BROS. DIV. of Allied Products Corp., Detroit, tool and die manufacturers, has added a zinc alloy foundry to its modern tool and die facilities at its Hillsdale, Mich., plant. This is believed to be the only tool and die shop in the country with a fully equipped foundry for pouring zinc alloys used in low cost tooling.

The new Hillsdale installation provides completely modern facilities for tool and die research and development. Allied officials believe that the ability to produce a pre-tested permanent draw die may save as much as 40 to 50 pct in tooling costs for some unusually difficult forming operations. Another advantage of having a foundry in conjunction with a tool and die shop is the ability to reduce substantially the time required to produce temporary or permanent tooling for stamped metal parts.

Past experience in stamping plants has shown the desirability of building pre-tested tooling for new models. In its Hillsdale plant, Allied Products is now able to design such tools, make the patterns, pour the castings and try out the dies. Die design and tryout is di-

rected by experienced tool engineers and die makers who work in close cooperation with the foundry. The specific purpose of the foundry is the making of dies from low melting point, zinc alloys.

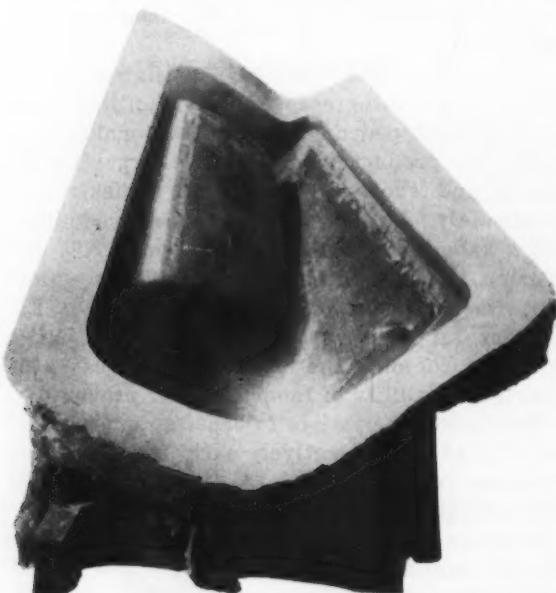
The following advantages are claimed for a setup which integrates foundry facilities with a fully equipped die shop: (1) It makes possible the production of dies for experimental parts and short-run production quickly and accurately. A zinc alloy die may be used either as a hammer form or for press work. (2) Die design tryouts can be made on difficult stampings *before* permanent tooling is started. Experimental dies may be built for the entire piece or for only the critical draw areas. (3) Early availability of temporary but proven dies often makes it possible to order supplementary tooling at a comparatively early date—welding fixtures is an example. (4) A limited number of essential parts can be furnished to manufacturers who may have encountered delays in the final stages of tooling for a new model. Recently a car producer ordered 20 fenders for pilot models. This permitted adequate testing



MOLTEN ZINC ALLOY being poured from one of two 4-ton Knopp gas-fired tilting furnaces.



MOLDING OPERATION shows Albany fine sand being sifted over the die punch contour on the foundry floor.



PLASTER PATTERN is one of many used by Allied in making a zinc alloy die for an auto part.

Lower Die Cost

Continued

COMPARATIVE PHYSICAL PROPERTIES

	Ultimate Tensile Strength, psi	Charpy Impact, ft.-lb.	Brinell Hardness Number	Shrinkage, in. per ft.
Kirkite "A" Sand Cast.....	37,000	4.0	100	0.125
Cast iron.....	18,000 to 60,000	less than 1	132 to 270	0.125 to 0.188
Alum. Alloys, Sand Cast.....	19,000 to 29,000	0.8 to 4.0	40 to 70	0.158

of the new models before going into production. (5) It can provide parts in the "true die" condition as contrasted with the parts and metallic structures obtained where the part is hand made using a wooden form. (6) It can make dies for short run parts where the cost of permanent tooling is not justified. (7) Because its melting capacity exceeds the die finishing and die-tryout capacity, zinc alloy dies are being cast by Allied Products Corp. for finishing and tryout in other tool shops or in the manufacturer's own plant. (8) In the event of a broken die during production, a zinc alloy die can be built up quickly. Sometimes this can be accomplished before the broken die can be repaired.

Although the new foundry has been in operation for only a few months, several of the leading auto firms have already utilized the unique services the company is equipped to offer its customers.

For instance, a car manufacturer was having difficulty in forming a rear quarter panel. Parts had a wavy surface requiring power hammering and extensive finishing. Reworking of the die had failed to provide satisfactory parts. Before reworking the die, which was then in production, contemplated changes were incorporated in a zinc alloy die and proven. These changes were then built into the permanent tooling, greatly reducing down-time.

Another car producer had trouble with sample parts for a new model. A 24x30-in. stamping had a difficult reverse curve. Trouble was encountered at the binder line. Allied Products was able to provide patterns and castings within 2 weeks. Fitting and tryout of the zinc alloy die required another week so that an answer to the problem was available in less than a month.

Another auto manufacturer is using zinc

KIRKSITE "A" SAND CAST

Compressive Strength, psi.....	60,000-75,000
Shear Strength, psi.....	34,000
Melting Point, °F.....	717
Specific Gravity.....	6.7
Weight per cu ft, lb.....	432
Elong. in 2 in. sand cast, pct.....	3
Coefficient of linear expansion.....	15.4 × 10 ⁻⁶ per °F



FINISHED PART, foreground, is shown with its zinc alloy die base, draw ring, and punch.



REAR WINDOW MOLDING for a passenger car as it comes off the die is shown at left. Finished part appears at right after removal of excess metal.

alloy dies to work out its tooling for a rear axle housing. The housing is made in two halves which are subsequently welded together. Approximately 60 pieces were wanted. The parts were stamped out of 0.179-in. steel. For this part the die design was worked out successfully in 3 weeks.

Another car producer was confronted with the problem of making a front fender of entirely new design for a 1951 model. Using experimental zinc alloy dies the following engineering decisions were worked out in advance: (1) A workable die design was found and pre-tested; (2) each necessary step in the processing was determined and proved in advance; and (3) a satisfactory welding method was worked out for die-made parts in advance of placing the order for welding fixtures and equipment.

One of the most unusual problems presented thus far is the production of a part for an automobile requiring an unusually deep draw. The part has several reverse contours. Allied was able to work out a satisfactory design to make this part in one piece rather than in three pieces.

In designing the temporary tooling, one end of the die provided for the shallowest draw that could be used with a restrike operation while the die at the opposite end formed a contour having the deepest draw that was considered to be possible. This work is now in progress but there is evidence that a satisfactory tooling design will be found quickly and at unusually low cost.

Many of the dies being poured are 3-piece dies. Two 4-ton Knopp gas furnaces can provide enough hot metal for a 24,000 lb die. A 50-ton Warco tryout press is installed adjacent to the foundry. Several tryout presses having a maximum capacity of 1,000 tons are available for use. A 15-ton Northern crane services both the foundry and the tryout equipment.

A completely equipped pattern shop has been set up. Wood or plaster patterns may be employed. The company is prepared to make its own plaster patterns. These may be made from actual parts if desired. Shrinkage allowance in designing patterns is $\frac{1}{8}$ in. per ft. Plaster patterns, built by experienced craftsmen, are reinforced wherever necessary to provide adequate strength and rigidity. Experience in building patterns exclusively for low melting alloys has made it possible to achieve unusual accuracy. Pattern shells and hemp reinforcement of the plaster are often used to save time and cut pattern costs.

The foundry is equipped with tilting-type melting furnaces. Hot metal can be held in the molds if necessary to pour castings somewhat larger than the furnace capacity.

At the present time all castings are being made of low melting point zinc-base alloy (Kirksite) having approximately the following composition: $2\frac{1}{4}$ pct Cu, $4\frac{1}{4}$ pct Al, and the balance C.P. zinc. Physical and other properties are given in the Tables. Typical melting time required for a 4-ton heat is 3 to 4 hr. The melt is held at a constant temperature not over 900°F. Pouring temperature is 825° to 850°F. The ladle is firebrick lined.

A level foundry floor 16x40 ft is provided for molding operations. Albany fine sand is used in molding and moisture content is carefully controlled to assure proper mold strength. All pouring is done in open molds.

Ramming depends on the depth of the casting and other factors. Gating is at the lowest level in the casting. The metal is poured against a slab core to guard against turbulence. Where required, cores are made of plaster. Castings are usually taken out at 450° to 500°F and cooled with a water spray. Finishing of the castings follows the usual technique employed in die shops. Conventional cutters are used, but hard grinding wheels are avoided. Most commonly employed tools are rotary files, hand scrapers, hand files, and emery disk sanders.



LEFT TO RIGHT: William E. Mahin, Armour Research Foundation; Thomas G. Digges, National Bureau of Standards; Elmer Gammeter, Globe Steel Tubes Co.; Harry P. Croft, Kennecott Copper Corp.; Leslie W. Ball, U. S. Naval Ordnance Laboratory; Earl L. Shaner, Penton Publishing Co.; Clarence E. Sims, Battelle Memorial Institute; Clyde Williams, Battelle Memorial Institute; Earle C. Smith, Republic Steel Corp.; Morris Cohen, Mass. Institute of Technology; Axel Hultgren, Royal Institute of Technology, Sweden; Harold K. Work, New York University; Zay Jeffries, General Electric Co., retired.



CHARLES E. WILSON, right, president of General Motors and recipient of the ASM medal for the advancement of research, was introduced by A. E. Focke, left, past president of ASM.



ZAY JEFFRIES, retired vice-president of General Electric Co., delivered the principal address at the annual ASM banquet.



C. H. JENNINGS, Westinghouse Electric Corp., gave the Adams Lecture before the AWS. O. B. J. Fraser, right, International Nickel Co. and past president of AWS, presents the award.

SPEAKERS TABLE AT

Metal Congress

Features

High Production

The biggest show on earth took place at Chicago last week when the National Metal Congress held its 32nd annual convention. Four technical societies teamed up, took over the International Amphitheatre for their exhibits and practically all hotel space where the 200 technical papers were presented.

In the 360 exhibits at the Amphitheatre "High Production," the theme of the show, was demonstrated. Latest developments in all the metal-working industry were found in the various booths. The industry which does an annual business of about \$76 billion attracted around 25,000 representatives. The list of speakers in the technical sessions represented the "Who's Who" of American metallurgists and engineers.

Awards for meritorious research were given. New officers were elected by the American Society for Metals, the American Welding Society, the Institute of Metals of the American Institute of Mining & Metallurgical Engineers and the Society for Non-Destructive Testing.

One of the most signal honors of the show, the Campbell Memorial Lecture, was given by Earle C. Smith, chief metallurgist, Republic Steel Corp., Cleveland, who spoke on iron smelting problems.

The symposiums on radio-isotopes, magnetic particle testing and ultrasonic inspection drew a large attendance. Three lecture courses on high temperature properties of metals, interpre-

ARTHUR E. FOCKE, Diamond Chain Co., Inc.; Charles E. Wilson, General Motors Corp.; Walter E. Jominy, Chrysler Corp.; Albert E. White, University of Michigan; Ralph L. Wilson, Timken Roller Bearing Co.; George T. Hook, The Iron Age; John Chipman, Mass. Institute of Technology; W. O. Binder, Union Carbide & Carbon Research Labs.; William V. O'Brien, General Electric Co.; O. B. J. Fraser, International Nickel Co.; James B. Austin, U. S. Steel Corp.; James T. MacKenzie, American Cast Iron Pipe Co.; William H. Eisenman, ASM.

THE ASM BANQUET

Equipment, materials and techniques for higher production shown and described at the 32nd annual convention . . . More than 200 technical sessions, 360 exhibits, exemplified industry's mobilization plans for higher production in event of national emergency.

tation of tests and correlation with service and metallurgy of titanium, played to a full house.

The meet ran from Saturday, Oct. 21, to Friday, with a tempo that never slowed down. On Sunday a sales clinic meeting was held and industry executives also talked things over in the business forum session, both of which were special events. The sales clinic emphasized selling through industrial exhibits and the business forum dwelt on industry's part in production for war.

In addition to regular exhibits, 23 different miniature movie houses were in operation at the exposition hall. New subjects and new stars were presented in these economy theatres. The seminar on "Atom Movements" interpreted the diffusion in metals. Twenty or more technical schools held alumni luncheons or dinners during the show. Seven Canadian chapters of ASM also got together for a luncheon meeting.

Mr. Zay Jeffries of Case Institute of Technology, retired vice-president of General Electric Co., spoke at the annual ASM banquet Thursday night at the Palmer House. Four major awards were presented at this meeting for meritorious research in metals. Harold K. Work was given the past president's medal by ASM. Charles E. Wilson, president of General Motors Corp., received the ASM medal for the advancement of research.



EARLE C. SMITH, left, who delivered the Campbell Memorial Lecture, and Walter E. Jominy, newly-elected ASM president.



CLARENCE E. SIMS, assistant director, Battelle Memorial Institute, was the recipient of the Sauver Award. Mr. Focke, back to camera, is presenting the award, while Clyde Williams, director of Battelle Memorial Institute, looks on.



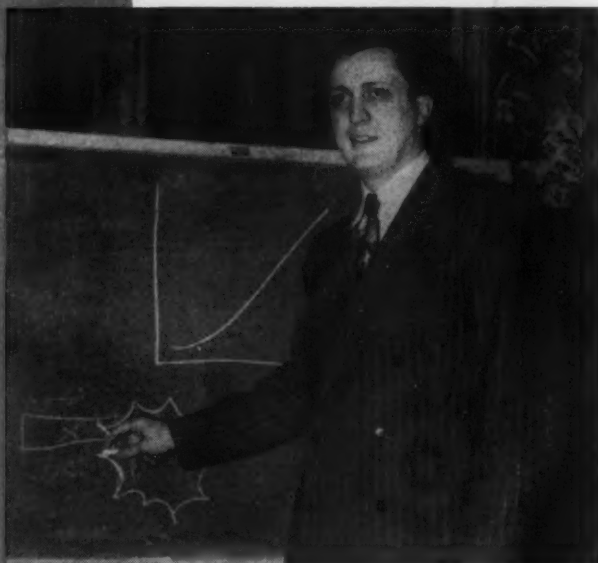
DR. R. C. McMASTER, Battelle Memorial Institute, delivered the 1950 Mehl Lecture. Dr. L. W. Ball, past president of the Society for Non-Destructive Testing, left, presents the award.



PARTICIPANTS in the AIME technical session on research and progress, left to right, Dr. R. F. Mehl, E. S. Machlin, M. T. Simnad and Dr. M. Cohen.



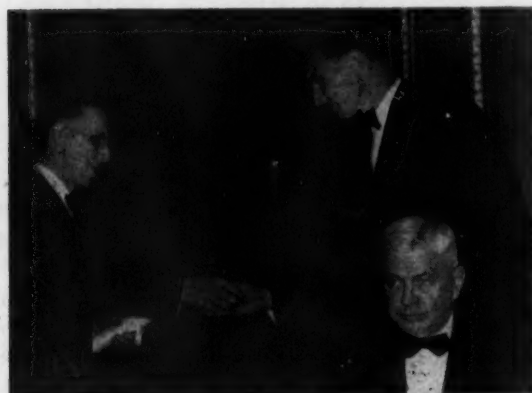
DR. N. J. GRANT, Mass. Institute of Technology, delivered a paper on stress rupture testing at the ASM lecture course on high temperature properties of metals.



DR. F. D. MOSI, Sylvania Electric Products, Inc., speaker at AIME Technical Session on Research in Progress, presented two papers concerning the crystallization structure of silver.



E. R. JOHNSON, Republic Steel Corp., left, chairman at the Campbell Memorial Lecture, congratulates Earle C. Smith, who delivered the lecture on Iron Smelting Problems.



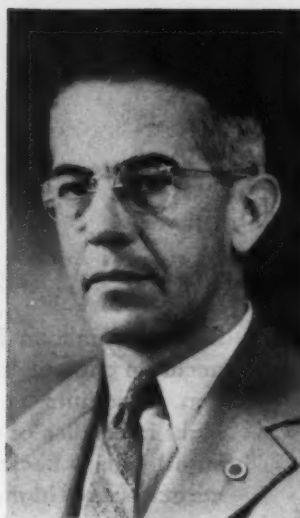
W. O. BINDER, right, Union Carbide & Carbon Co., receiving the Henry Howe Award for himself and two colleagues, C. M. Brown and Russell Franks. Seated is C. E. Wilson, president of General Motors Corp.



WALTER JOMINY, left, Chrysler Corp., is new president of ASM. John Chipman, Mass. Institute of Technology, is vice-president for the coming year.



NEW OFFICERS, Society for Non-Destructive Testing, left to right: N. A. Kahn, U. S. Naval Shipyard, vice-president; W. E. Thomas, Magnaflux Corp., president; Dr. R. C. McMaster, Battelle Memorial Institute, treasurer; P. D. Johnson, secretary.



HENRY W. PIERCE, left, New York Shipbuilding Corp., elected president of AWS for 1950-51. C. H. Jennings, right, Westinghouse Electric Corp., was chosen vice-president.



AXEL HULTGREN, left, professor of metallurgy, Royal Institute of Technology, Stockholm, was presented an honorary life membership in ASM by Mr. Focke.



PROMINENT at some of the informal social sessions were The Chicagoans, a barbershop quartet.



A PORTION of the many exhibits featuring equipment and methods for higher production.

Sodium Content

Kaiser Aluminum has developed a rapid and accurate photometric method for the determination of sodium in aluminum and its alloys. Light intensities of atomized solutions are measured with a Beckman spectrophotometer. Accuracies are higher than with conventional procedures. Analyses can be done in 30 min.

PERCENTAGES of sodium in aluminum and its alloys and now rapidly and accurately determined at Kaiser Aluminum by a method using a Beckman flame spectrophotometer. Sodium may be found as an impurity in aluminum, or it may be added intentionally to produce desired physical effects. The photometric technique was developed to speed and make more economical the metallurgical behavior of the alkali metal. The technique would also allow rapid evaluation of the effects of numerous types of sodium fluxes used in aluminum remelting.

Potassium exists as a very small impurity in pure aluminum and does not usually occur in aluminum alloys. However, it might be introduced to aluminum for experimental purposes or it might find its way into aluminum alloys through the use of special fluxes containing potassium. For this reason, the feasibility of determining potassium with the flame photometer with or without the presence of sodium was also considered.

Kaiser's problem was to find a simple direct way to determine sodium percentages. It was also considered desirable to keep the effort of sample preparation to a minimum and to avoid lengthy, difficult separations. Flame photometry seemed to offer these advantages. The solution to be analyzed would be atomized and the resulting mist introduced into a flame. It was felt that with the aid of a suitable spectrophotometer, or of selective color filters, light of a given wavelength could be isolated and the intensity of this light measured directly by means of a photoelement.

The determination of sodium in aluminum by

the usual gravimetric or volumetric methods is time-consuming and often of doubtful accuracy. The procedure of Bridges and Lee¹ involves repeated meltings and leachings of the sample. The determination of the sodium in this case is obtained by titration with sulfuric acid. This method is not practical since it cannot be applied to aluminum containing other alkali or alkaline earth metals.

Gravimetric Methods Too Slow

The gravimetric methods of Caley and Sickman,² or Barber and Kolthoff,³ are the best gravimetric procedures. However, considerable time is involved in completing an analysis. Magnesium uranyl acetate is used as the precipitating reagent in the former case while zinc uranyl acetate is used in the latter. The procedure of Brook and Fairlie,⁴ where the aluminum is separated as aluminum nitrate from strong nitric acid and the sodium determined in the residual solution, is tedious, and therefore could hardly be recommended as a routine method.

In the development of the photometric method, a Beckman flame spectrophotometer manufactured by National Technical Laboratories was used. The apparatus is shown in Fig. 1. The flame unit consists essentially of an atomizer, spray chamber, burner and control unit. The atomizer is placed in the mouth of the spray chamber and its inlet dips into the solution being measured. Compressed air enters through a side tube of the atomizer and draws the sample into the electrically heated spray chamber where it is evaporated. The sample then passes to the burner, and the spectral lines of the chemical elements are excited in the flame. The quartz spectro-

in Aluminum

Speedily Analyzed



By D. A. BREWSTER and C. J. CLAUSEN, JR.
Kaiser Aluminum & Chemical Corp.,
Spokane, Wash.



photometer serves to isolate these lines and to measure their intensities.

The fuel mixture used consisted of air, propane and oxygen. Oxygen was operated at a pressure of 30 in. of water while the air was maintained at 15 psi. The most suitable gas pressure was in the range of 3 to 5 cm of water.

Stock standard solutions of sodium, potassium and lithium chlorides were prepared and stored in glass-stoppered pyrex volumetric flasks. The stock solutions of sodium and potassium usually contained 1 mg of the element per ml and were diluted to whatever concentration desired. The sodium and potassium chlorides were spectroscopically pure salts purchased from Johnson, Matthey and Co. The lithium chloride solution contained 10 mg of lithium per ml. This was also diluted to various desired concentrations. C.P.

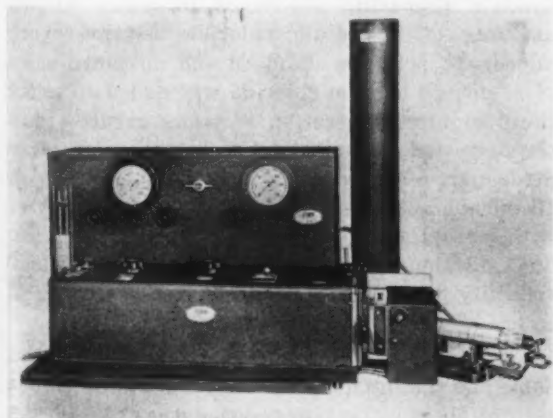


FIG. 1—A Beckman Flame Spectrophotometer in which atomized test solutions pass through a flame unit. The quartz spectrophotometer isolates the spectral lines of the elements present and measures their intensities.

reagent grade sulfuric, nitric, and hydrochloric acids were used.

Tests substantiated other investigations,^{2, 3, 4} that errors in flame photometry may be caused by: (1) Fluctuations in air, oxygen, or gas pressures; (2) changes in temperatures and viscosities of solutions; and (3) by the presence of foreign materials in the solution. All of these variables tend to alter rates of flow into the atomizer and to produce effects that are not thoroughly understood. Developing a flame method of analysis involves, mainly, the study and possible elimination of the expected interferences.

Probably the most serious interference is due to foreign ions. If the interferent emits light, it may register as light from the test substance, particularly if the emission lines are close together.

The common inorganic acids needed for the solution of aluminum and its alloys show a marked influence on the intensity of sodium. This is shown by experiments illustrated in Fig. 2. Sulfuric acid causes a very marked decrease in the intensities, so nitric and hydrochloric acids were used for the solution of the samples. They also caused decreases, but the differences were not as noticeable as with sulfuric acid.

There are two accepted methods of compensating for the various errors. The first, or absolute method, involves the preparation of standards containing relatively the same amounts and kinds of interfering elements that are present in the sample. The light intensity of the particular element is measured in both the sample and the standard, and the values are carefully compared.

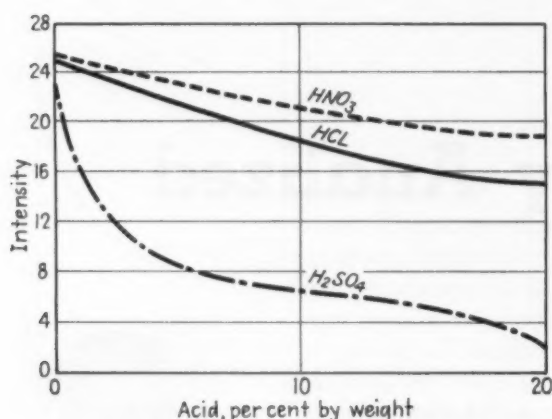


FIG. 2—The effects of various acids on the intensity of a 5 ppm sodium solution show that sulfuric acid causes a marked decrease in intensity.

The second is the internal standard method, in which an element that has nearly the same light emitting characteristics as the test substance is introduced into both the standards and the unknowns. The standards do not necessarily contain the same amounts and kinds of interfering molecules as the solutions to be analyzed. In this method, the intensity of the internal standard element and the constituents being determined are both measured. From the data, the ratio of the internal standard to the unknown element is calculated. The principle of this method is that the factors influencing the flame characteristics of one element are similarly affecting the other, so that the ratio of their intensities is constant regardless of experimental conditions.

An illustration of the internal standard and absolute techniques of measurement is presented in Fig. 3, where the depressing effect of aluminum on the intensity of sodium was studied. For the absolute method, a series of solutions were prepared containing 1 mg of sodium and varying

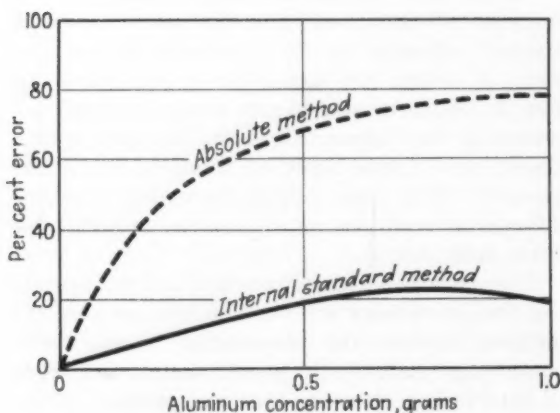


FIG. 3—The effects of aluminum concentrations when determining sodium by the internal standard method and the absolute method.

amounts of aluminum in a volume of 50 ml. The intensity of the sodium was measured for all the samples and the results plotted as percent error on the intensity readings.

To another series of solutions, 10 mg of lithium were added in addition to the sodium and aluminum, to serve as the internal standard. The choice of lithium for this purpose lies in the fact that it is an alkali metal that resembles sodium and potassium in its chemical properties and flame characteristics. The intensity of the sodium and lithium were determined, the ratios calculated, and the results plotted in the same manner as the absolute method. Since the aluminum affects the lithium as well as the sodium, a nearly constant ratio was obtained.

In both series of solutions, the sodium and lithium were added as chlorides. The hydrochloric and nitric acids used to dissolve the metal were at a constant concentration in each sample in order to show the actual effect of aluminum.

Internal Standards Used

The error involved in the solutions without added lithium amounts to over 70 pct when 1 g of aluminum is present. This error is reduced to approximately 15 pct when the internal standard is used. It was also observed that potassium exhibited a decrease in intensity with corresponding increases in aluminum. This error was considerably reduced when the internal standard was added. In our method of analysis, the use of the same amounts of aluminum in both standards and unknown samples compensates for this error, since it is essentially an error of interference.

Actually, a combination of the two methods was used in order to cut down the possible sources of error. In addition to using an internal standard, standard solutions were prepared to resemble the unknown samples as close as possible.

One gram samples of the metal were dissolved in a mixture containing 5 ml H₂O, 10 ml HCl, and 2 ml HNO₃. Sodium-free aluminum, analyzed by previously described conventional methods, was used in preparing standards to which known amounts of a sodium chloride solution were added. To both the standard and unknown samples, enough lithium chloride was added to make the lithium concentration 10 times greater than the suspected sodium content. The solutions were made up to 50 ml with distilled water from which 10 ml aliquots were taken and diluted to 25 ml with methyl alcohol. Methanol was used for the final dilution simply to provide more efficient volatility properties and to increase the light emitted by sodium.

The alcoholic solutions were volatilized in the flame and the intensity of the sodium and lithium read at their respective wavelengths. All of the readings were corrected for flame background. The wavelengths used were 589.3 millimicrons for sodium and 670.8 millimicrons for lithium, since experiment proved a maximum intensity

at those points. The best slit opening for the Beckman spectrophotometer depends on the amount of alkali present and the width of its flame line. Also, the presence or absence of foreign materials in the solution influences the slit setting. Actually, in the case of sodium, an opening between 1 and 2 mm gave the best precision and resolving power. The slit width used for measuring lithium varied between 0.1 and 0.2 mm. The operating pressure for air, oxygen and gas has been previously mentioned.

Aluminum alloys usually contain copper, iron, magnesium, manganese and silicon as principal alloying constituents. Other elements such as zinc and chromium, as well as trace materials, are present in varying amounts.

Since each alloy has a different chemical composition, interferences from these various elements on the sodium measurements can occur. This possibility, however, is remote due to the relative intensity of the sodium line in comparison to the other lines. To check this, as well as the method in general, known amounts of sodium chloride were added to a series of six different alloys, dilutions being made to make the aluminum alloy and the added sodium equal to 1 g weight. Standards were prepared from pure aluminum metal free of alkali elements. Lithium, as the internal standard, was added in appropriate concentration, as previously described. Each alloy was assayed for sodium before adding sodium chloride and this value subtracted from the final results. The quantities of sodium pre-added and those found, along with the percent

TABLE I

RECOVERY OF SODIUM ADDED TO ALUMINUM ALLOYS

Type of Aluminum	Principal Alloying Constituent	Sodium Added (Percent)	Sodium Found (Percent)	Deviation (Percent)	Recovery (Percent)
Commercially Pure		0.100	0.102	+0.002	102.0
3S	Mn	0.0040	0.0034	-0.0006	85.0
3S	Mn	0.0100	0.0112	+0.0012	112.0
3S	Mn	0.050	0.049	-0.001	98.0
3S	Mn	0.030	0.033	+0.003	110.0
3S	Mn	0.100	0.096	-0.004	96.0
4S	Mn & Mg	0.0080	0.0050	-0.0010	83.3
4S	Mn & Mg	0.0080	0.0088	+0.0008	110.0
4S	Mn & Mg	0.0100	0.0083	-0.0017	83.0
4S	Mn & Mg	0.0008	0.0008	0.0000	100.0
4S	Mn & Mg	0.020	0.021	+0.001	105.0
4S	Mn & Mg	0.040	0.035	-0.005	87.5
4S	Mn & Mg	0.080	0.063	-0.003	105.0
35S	Cu	0.0040	0.0047	+0.0007	117.5
35S	Cu	0.0090	0.0072	-0.0018	80.0
35S	Cu	0.0040	0.0042	+0.0002	105.0
35S	Cu	0.025	0.025	0.0000	100.0
35S	Cu	0.042	0.046	+0.004	109.5
35S	Cu	0.060	0.058	-0.002	96.7
35S	Cu	0.100	0.095	-0.005	95.0
35S	Cu	0.025	0.022	-0.003	88.0
35S	Cu	0.042	0.043	+0.001	102.4
35S	Cu	0.100	0.092	-0.008	92.0
24S	Cu & Mg	0.0010	0.0011	+0.0001	110.0
24S	Cu & Mg	0.0050	0.0042	-0.0008	84.0
24S	Cu & Mg	0.0050	0.0049	-0.0001	98.0
24S	Cu & Mg	0.0070	0.0074	+0.0004	105.7
150S	Mg	0.0030	0.0031	+0.0001	103.3
150S	Mg	0.0050	0.0050	0.0000	100.0
150S	Mg	0.0050	0.0051	+0.0001	102.0
150S	Mg	0.0070	0.0060	-0.0010	85.7
150S	Mg	0.0080	0.0070	-0.0010	87.5
150S	Mg	0.0100	0.0090	-0.0010	90.0

Average Recovery..... 97.8

TABLE II

PRECISION STUDY OF THE METHOD

Type of Aluminum	Sodium Present (Percent)	Sodium Found (Percent)	Deviation (Percent)
High Purity Pig	0.017	0.017	0.000
		0.018	+0.001
		0.018	+0.001
		0.018	+0.001
		0.018	+0.001
		0.017	0.000
		0.017	0.000
		0.017	0.000
		0.017	0.000
High Purity Pig	0.0012	0.0014	+0.0002
		0.0014	+0.0002
		0.0016	+0.0004
		0.0017	+0.0005
		0.0017	+0.0005
		0.0009	-0.0003
		0.0007	-0.0005
		0.0010	-0.0002
Average			+0.0004

recovery are tabulated in Table I. The concentrations of the alloying elements normally found in aluminum alloys had no apparent effect on the analytical data and could, therefore, be excluded as a source of error. When 0.1 pct Na or less was present in any alloy, the average recovery was 97.8 pct.

To test the precision of the flame photometric method, nine samples containing 0.017 pct Na and eight samples containing 0.0012 pct Na were prepared and analyzed according to the procedure given. These results, as shown in Table II, proved the precision to be exceptionally good with an average of only ± 0.0004 pct.

A comparison of results obtained by determining sodium on 12 samples by the zinc uranyl acetate gravimetric method¹ and the flame method is given in Table III. Since nine of the samples are purchased standards, these values are also given. The greatest difference between the two methods was 0.0040 pct and the average deviation was 0.0019 pct.

As previously mentioned, potassium does not usually occur in aluminum alloys. However, it

TABLE III

COMPARISON OF FLAME PHOTOMETRIC AND GRAVIMETRIC METHODS

Type of Aluminum	Purchased Standards (Percent)	Flame Photometric (Percent)	Gravimetric (Zinc Uranyl Acetate) (Percent)	Deviation (Photometric-Gravimetric) (Percent)
High Purity Pig	0.0012	0.0010		
High Purity Pig	0.0170	0.0170	0.0160	-0.0010
High Purity Pig	0.0380	0.0370	0.0380	+0.0010
Silicon Casting Alloy	0.0007		0.0010	
Silicon Casting Alloy	0.0016	0.0022		
Silicon Casting Alloy	0.0042	0.0035	0.0052	+0.0017
Silicon Casting Alloy	0.0062	0.0073	0.0043	-0.0030
Silicon Casting Alloy	0.0120	0.0130	0.0102	-0.0028
Silicon Casting Alloy	0.0220	0.0170	0.0157	-0.0013
2S		0.0250	0.0210	-0.0040
High Purity Pig		0.0017	0.0012	-0.0005
3S		0.0028	0.0036	+0.0008

Average..... +0.0019

Continued

may be added for experimental purposes. For this reason, a study was made to ascertain the interference of sodium and potassium upon each other when their respective intensities are measured in the flame. Samples were prepared containing known amounts of aluminum metal and sodium and potassium chlorides. These were analyzed for one alkali, present in the 0.0 to 0.5 mg range, while the interfering element was varied from 0.1 to 20 mg. The interfering effects, if any, are small for sodium and potassium concentrations, namely 1 mg or less for 1 g of sample. It is evident, however, that interferences do occur when abnormal amounts of the interfering elements are present.

The procedure is applicable over the range of 0.001 to 0.050 pct, in which the sodium content of aluminum is usually found. By proper dilution, the procedure may be employed where a higher sodium range is encountered.

The average recovery of sodium in the range

of 0.0010 to 0.100 pct is 97.8 pct. Results may be duplicated on the same sample with good precision showing an average deviation of 0.0004 pct in metal containing 0.017 and 0.0012 pct Na. It is believed that sodium and potassium may be determined without danger of mutual interference when the samples contain normal amounts of those elements.

The flame photometric method, producing results comparable to the zinc uranyl acetate gravimetric method, offers several advantages, namely, 30 min determination time, good precision, excellent accuracy and a low cost instrument outlay.

References

- ¹ H. H. Barber and I. M. Kolthoff, *J. Am. Chem. Soc.*, 50, 1928, p. 1625.
- ² R. B. Barnes, D. Richardson, J. W. Berry, and R. L. Hood, *Ind. Eng. Chem., Anal. Ed.*, 4, 1932, p. 264.
- ³ J. W. Berry, D. G. Chappell and R. B. Barnes, *Ind. Eng. Chem., Anal. Ed.*, 18, 1946, p. 19.
- ⁴ C. E. Bills, F. G. McDonald, W. Niedermeier and M. C. Schwartz, *Anal. Chem.*, 21, 1949, p. 1076.
- ⁵ R. W. Bridges and M. F. Lee, *Ind. Eng. Chem., Anal. Ed.*, 4, 1932, p. 264.
- ⁶ G. B. Brook and D. M. Fairlie, *J. Inst. Metals*, 32, 1924, p. 283.
- ⁷ E. Caley and D. V. Sickman, *J. Am. Chem. Soc.*, 52, 1930, p. 4247.

First Manhour Study of Iron and Steelmaking Now Available

A NEW book, *Productivity in the Blast-Furnace and Open-Hearth Segments of the Steel Industry, 1920-1946*, published by the Fordham University Press, is required reading for steel plant operators. The work deals, on a plant basis, with productivity in two of the basic operations of the steel industry over a 27-yr period. Separate treatment is given to each of the two operations.

The measurement of productivity is made in terms of manhours per ton of pig iron for the blast furnaces and manhours per ton of ingots for the open hearth. The figures which are presented on an annual basis show a substantial increase in productivity during the period under observation. They indicate that about one-half as many manhours were required to produce a ton of product in 1946 as were required in 1920. In addition to the manhour data the work presents costs and operating data for the plants under study.

The trend in productivity is analyzed to dis-

cover the reasons for the long-term increase. The analysis takes into account all of the improvements and additions to plant that were made at the blast furnaces and open hearths during the period in question. The new and improved equipment is evaluated in terms of performance and cost data. Attention is also given to the quality changes in raw materials.

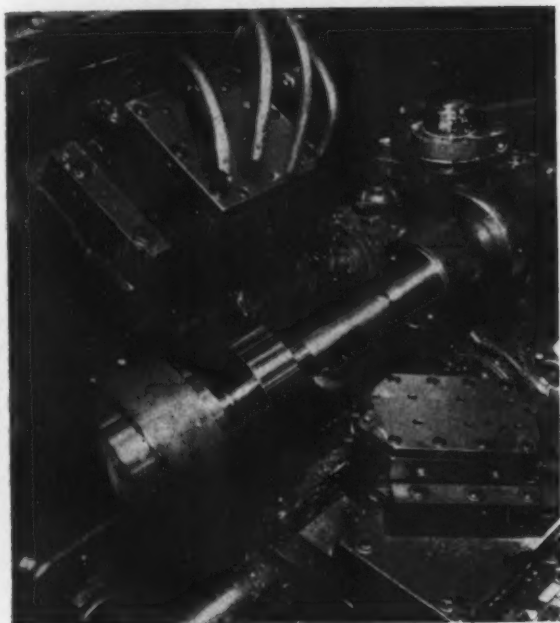
In addition to the productivity measurement and analysis there are descriptive chapters which present a historical review of the developments in the blast furnace and open hearth furnace. These chapters contain a number of diagrams and illustrations.

The author has spent 3 yr in research in the steel industry during which time he has had an opportunity to visit most of the major mills in the country and make detailed studies of their operations. The book, by Father Hogan, represents the first publication of actual manhour data in the steel industry on a plant level for the open hearth and blast furnace processes.

Selective Hardening Enables Machine Speedup

By DOUGLAS GODBY

General Foreman,
Dynaflow Transmission Plant,
Buick Div., General Motors Corp.,
Flint, Michigan

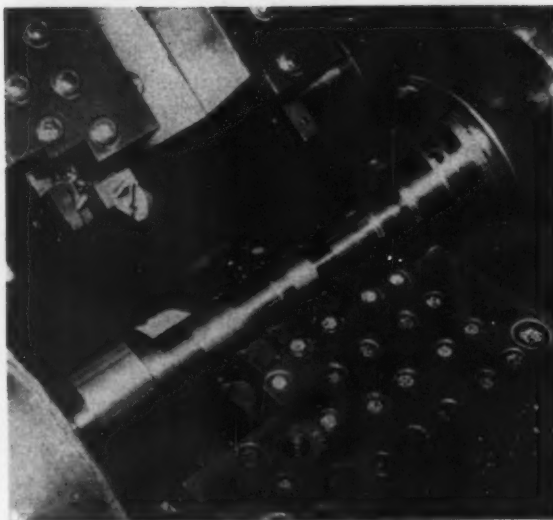


AUTOMATIC LATHE setup for rear carrier. Rear tools cut grooves at about 500 fpm. Lighter cuts on hardened portions are made by front tools, one being at 1100 fpm.

INCREASED demands for Buick cars with the Dynaflow automatic transmission have necessitated higher output of the components required. This has resulted in many changes in details of production of the components, designed to meet revised schedules in the Buick transmission plant. In many cases, substantial cost reductions have also resulted from altered practices though quality has been retained and often improved.

Front and rear carriers for planetary gears are among the high precision parts on which processing has been altered with beneficial results. Dimensional limits on these parts continue as close as formerly. But faster machining has

From overall hardening prior to machining, Buick changed to induction heating only where needed on a transmission part. Change raised production by enabling use of higher machining speeds. In one case, machine horsepower was doubled to take advantage of higher permissible speed.



DOUBLED POWER is used on this automatic lathe as a result of heat treating changes which make possible cuts at a speed up to 1400 fpm, with solid carbide tools.

been made possible by changes in materials, in heat treating, and in cutting tools.

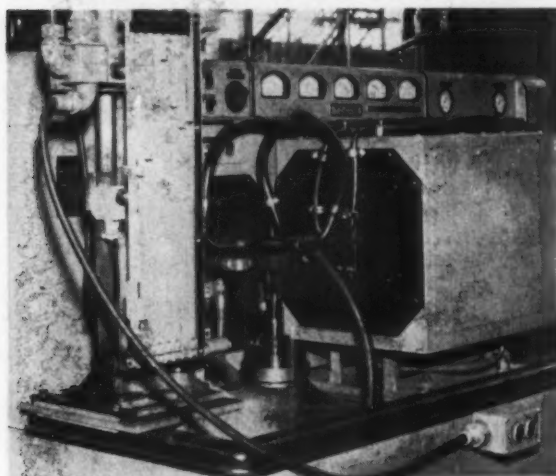
Formerly, carriers were made from SAE 5140 steel and furnace hardened to 30 Rc before machining. This made machining rather difficult but gave good results. Hardness is required only at certain locations, however. By induction heating and quenching, it can be done readily at these points while leaving the balance of the part unhardened. This practice is now followed on carriers. They are now made from SAE 1033 steel, which is well suited to the new processing.

Higher Speeds Possible

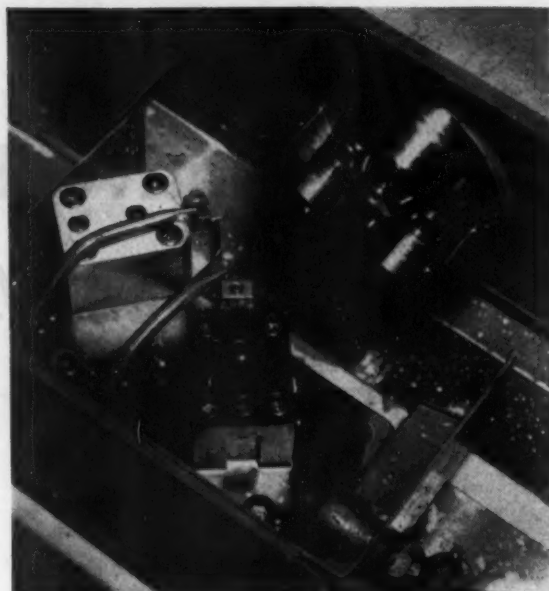
With this change, much of the machine work is on unhardened portions and can be performed at much higher speeds. An example of such work is that on rear carriers done on 8-in. Fay automatics. Rear tools in this setup are of Ramet E and cut four grooves at about 500 fpm. The work turns at 1610 rpm. There are also some lighter cuts, one of which, on the hardened largest diameter, is at 1000 fpm. Forty pieces an hour are machined in this setup.

In another setup a 12-in. Fay is used. Its driving motor has been changed from 20 to 40 hp and cutting speeds on the soft large diameter are 1400 fpm. The depth of cut in this case is 0.035 in. and feed is about 0.012 in. per rev. Tools are solid 831 Carboly in this instance.

A 75-kva Tocco machine is used for induction surface hardening the shaft of the rear carrier. There are two inductor coils and the large bearing surface is hardened first by one of these. When this portion is up to temperature, water is turned on to quench this portion and continues to flow during subsequent progressive hardening of the shaft. Next, the second coil is energized



INDUCTION HEATER used to progressively induction harden shafts of rear carriers as they are lowered through a pair of inductor coils. Hardness depth is varied by changes in rate of lowering the work.



FACING of front carrier components is done in this setup. The continuous cut on the flange attains a speed of 1000 fpm. Finish superior to grinding is produced.

while the shaft is lowered at a varying speed depending on the specified depth of penetration of the hardened portion.

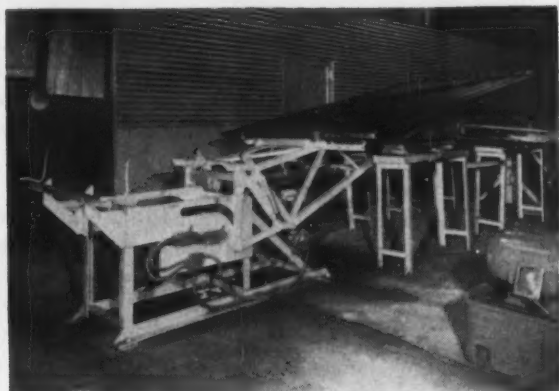
Actually, three different depths are provided, the depth being greatest at a groove where the groove would otherwise be the weakest point in the shaft. Variation in the rate at which the shaft is lowered is determined by setting of the machine's control, which thus regulates the variation in penetration depth. In this place, it is important not to harden the area around a hole near the flange and this area is kept cool. Temperature of the quench water used is kept constant at 85°F by automatic means. About 60 pieces an hr are hardened in this setup.

After hardening, the carriers are transferred to a continuous vertical draw furnace where the parts are heated to 700°F for 1 hr and then are quenched to handling temperature in water. This furnace has a capacity of 105 pieces an hr.

Intermittent Cut Taken

Machining on the front carrier includes that done in a Heald Borematic setup and includes an intermittent cut usually not advocated with carbide tools. One tool for facing the flange starts at its small diameter and feeds outward attaining a cutting speed of 1000 fpm. Then the second tool makes its intermittent cut across the face of the projecting sectors. The finish attained is 35 microinches, or better than was attained in the grinding operation formerly used.

Solid carbide tools of triangular section are used in this work. Depth of cut ranges from 0.005 to 0.012 in. and averages about 0.008 in. The carbide bits are designed to cut against their end face, and are rigidly supported in heavy tool holders. Zero rake is used on the tool for the continuous cut on the flange.



THE LIFTING and loading mechanism is equipped with a long holding frame.

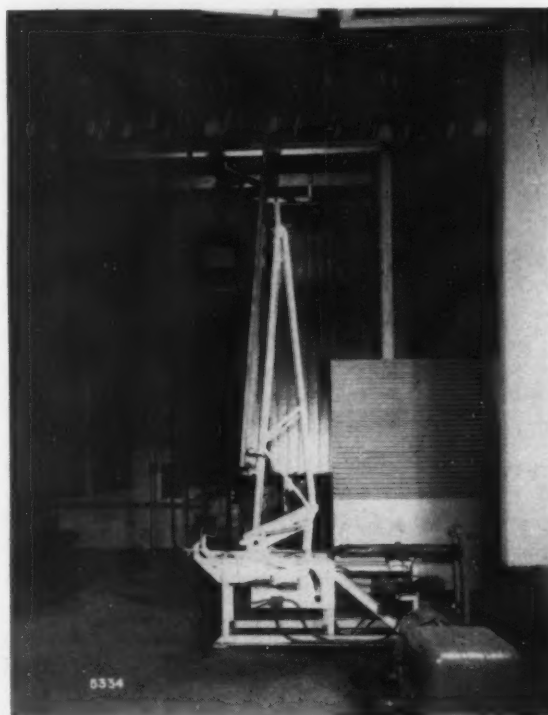
Automatic Conveyer Handles 400-lb Doors

THE problem of handling a completely assembled steel door, 8 ft wide, 14 ft in height and weighing more than 400 lb has been solved with specially designed and engineered equipment built by Allied Steel & Conveyors, Inc., Detroit. The completely automatic equipment is now operating in the plant of the manufacturer of these large steel doors. The cycle of operations includes automatic moving of an assembled door weighing 400 lb through painting, baking and shipping operations.

The cut above shows the conveyer—actually both a lifting and a loading mechanism equipped with a long holding frame. In the photograph, the device is just starting to raise one of the 8 x 14 ft doors from a horizontal position to a vertical position. At the bottom, the door rests on rollers; at the top, it is held against the lifting frame by a series of small permanent magnets. The lifting device is fully automatic and is actuated by both electrical and hydraulic devices. Control of the various movements in progressive steps is completely automatic. The movements of the lifting device are synchronized with an overhead traveling conveyer so that the door shown in the position illustrated at right is finally thrust slightly upward and forward, hung on a traveling conveyer and simultaneously released from the lifting frame. The action is entirely automatic.

The door, now suspended from the traveling conveyer, moves progressively through the paint booth, the baking oven and, eventually, to a position in front of an unloading mechanism. This device is similar to the lifting mechanism except that it operates in reverse.

The unloading mechanism, like the lifting mechanism, is electrically and hydraulically operated. In a similar manner, it is synchronized



HANGING of the doors on the traveling conveyer is automatic.

with the movement of the overhead conveyer. The device moves forward and slightly upward to remove the door from the overhead conveyer.

Again the door is held at the bottom by rollers on the lifting frame and at the top by a series of small permanent magnets.

The unloading device places the door in a horizontal position on to flat roller conveyer tables from which it is shunted into the adjacent shipping area. Thus, the handling of bulky, heavy steel doors is being accomplished entirely automatically from beginning to end.

DIECAST MAGNESIUM

Replaces Wood Chair Parts

Half as heavy as the wood they replaced, five magnesium diecastings form frame of a new folding chair. Unusually long cores are used in the casting of the legs.

By A. J. HEREK
Process Engineer,
Magline, Inc.,
Pinconning, Mich.

FEWER parts, lighter weight, sturdier construction and freedom from splintering, warping and squeaking are among the advantages gained by making folding chairs largely from magnesium. These benefits were realized when Louis Rostetter & Sons Co., Fort Wayne, replaced 14 wooden parts, weighing 10 lb, by five magnesium diecastings that weigh only 5 1/3 lb.

This company purchases the diecastings from Dow Chemical Co. and has them assembled and polished, ready for painting, by Magline Inc. The Dowmetal R alloy castings have an average section thickness of about 1/8 in. In effect, there are only three diecast components: the seat frame, front legs with their two integral rungs, and the rear leg-back unit including two integral rungs.

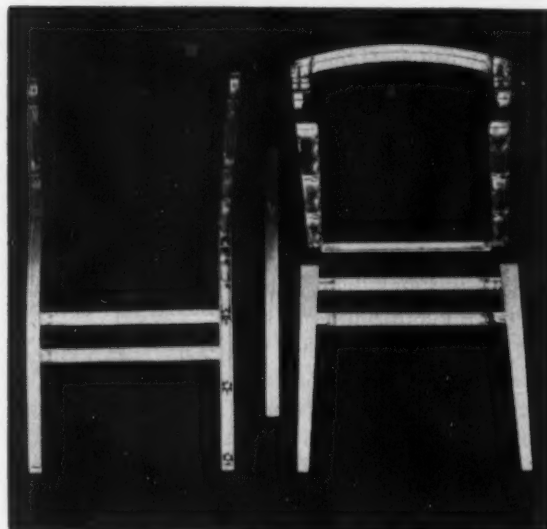
The front legs with their rungs constitute an unusual diecasting because the legs, which are 16 1/2 in. long, are cored for their full length from the top end. This requires cores of unusual length, especially for a metal that has high shrinkage. The cores, however, have considerable taper, which facilitates withdrawal.

In the actuating of these cores, angle pins are employed to engage inclined holes in the

core slide. As the die is opened, the pins break the cores free by mechanical means. Oil is then admitted to hydraulic cylinders attached to the die, forcing the rams outward and withdrawing the long cores. When the die closes again the core rams are reversed, and finally the cores are locked in correct longitudinal position by the angle pins when the die is closed. At their outer ends, the cores each have a short tapered projection that seats in a mating die hole. This insures having the cores centered.

The front leg dies have four vented overflow wells, one near the end of each leg and two opposite the ends of the rungs. These help to insure sound metal in the legs. By having the legs cored from one end rather than from the side, it is not necessary to provide side covers. This saves extra parts and extra assembly operations.

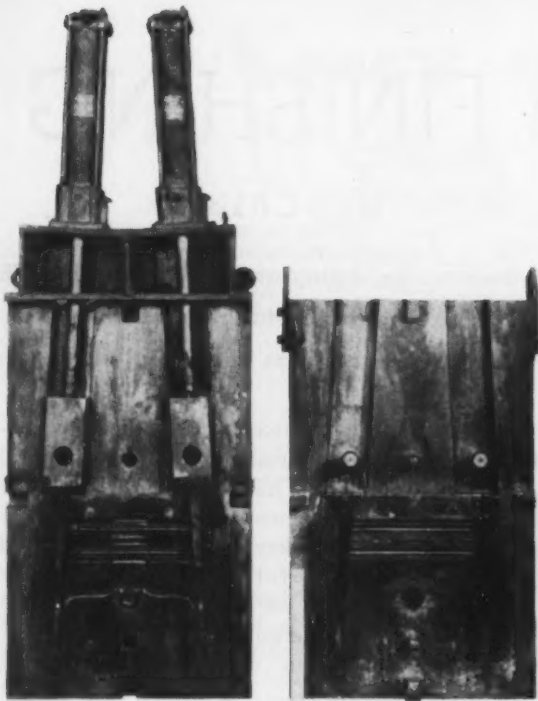
In the rear leg-back unit, coring has to be from the front because the legs, which continue above the seat to support the back rest, are not



FIVE MAGNESIUM diecastings form frame of new folding chair. Diecast cover plates, one shown in place at left, cover recesses in rear legs.

straight and are too long for end coring. Front coring requires relatively shallow cores that are fixed in the die and involve no core pulling problems. It is necessary, however, to diecast two covers and fasten them to the rear leg unit to hide the cored recesses. This assembly is done with counter-sunk flush-head, self-tapping brass screws, after which the piece is polished. When painted, this assembly appears to be one piece, the joints being completely hidden. Edge vents in the dies help to provide sound metal along the edges where covers fit.

Flash occurs along outer edges and is sheared off in a trim die used in a hydraulic press. After the covers are assembled, they are polished along these edges to eliminate all burrs, leaving the edges rounded and smooth. Before



FRONT LEGS are diecast in this die. The die half at left contains hydraulic cylinders for operating the 16 1/2-in. long cores.

covers are assembled on the rear unit, the bosses are drilled for self-tapping screws. This is done with portable drills, in special fixtures.

Bosses might have screw holes cored but such cores would be small and fragile and probably would require excessive maintenance. The bosses provide good bearing points for ejector pins, the marks left by these pins being hidden by the covers. Fastening of the covers is done with a power screwdriver, in fixtures similar to those used for drilling. After assembly, the rear unit is also polished.

Polishing is done by abrasive belts. To avoid magnesium fire danger, water spray dust collectors draw off the metal dust and collect it as a sludge under water for subsequent disposal.



FLASH from rear leg-back diecasting is trimmed in this hydraulic press.

posals. Air passes over several baffles before being exhausted. These baffles help to remove water from the air, and the water washes back into the sludge tank any dust not already caught by the water tank.

Initial polishing is with belts of 40 grit running over soft pulleys of 14 in. diam and turning at 1750 rpm. Belts are 3 in. wide and 132 in. long. For final polishing, belts of 80 grit are used over 10-in. wheels that also turn at 1750 rpm. To polish radii on the edges of legs, pulleys that have a circumferential groove of 3/32 in. radius are employed, using belts dis-



THE COMPLETED chair is lighter, sturdier and better looking than its wooden-framed predecessor.

carded after becoming worn through use in the previous operations. Pressure on the belt by the work pieces above the groove causes the belt to assume, at the point of contact with the edge, a troughlike shape with rounded contour favorable for rounding the edge being polished. The work piece is held with the edge parallel to the pulley groove and in its plane.

When polishing is completed, the castings receive a Dow No. 1 chrome pickle which tends to inhibit corrosion and provides an excellent base for subsequent painting. Two coats of paint are baked on. Seats are fastened to leg sections by steel links applied with self-tapping cadmium plated screws. The design results in folding chairs that are light, sturdy, and convenient to handle and store.

GERMAN PLATING and FINISHING DESCRIBED

Plating materials were scarce during and after World War II. Most effort was directed toward metal reclamation, stimulating pickling research. Zinc coatings came into wider use.

ELECTROPLATING and metal finishing development in Germany during the period 1940 to 1950 were described in a paper presented by R. Springer at this year's AES Convention in Boston. In general, the survey was divided into two parts, covering the war and postwar years.

Even before the war, limitations on the use of metals were so severe that very few were available for electroplating. Germany was arming and preparing at maximum speed, so nickel and tin were barred from civilian uses. After the war, only zinc and chromium were available; even these were not permitted for decorative purposes and were limited to corrosion and wear-resistance applications. Some research was carried on, but was therefore confined to chromium and zinc plating.

No Incentive After War

During the postwar years, 1945 to 1948, there was no incentive to do any plating, as there were no commercial products which could be marketed. All work at the time was concentrated on reclamation of materials and usable products from the war ruins. Such salvage consisted mainly of rust removal. Consequently, a fair amount of research was done on pickling with and without electric current, and also the use of oxidizing agents to provide a better surface in pickling operations. In 1948, general manufacturing began to pick up and is now definitely on the increase. As yet, however, there is little research.

During the height of the rush to reclaim metal products by rust removal, cost was no object. The products were necessary and no new ones were available. Nails, screws, nuts, bolts, etc., all the way up to typewriters and sewing machines, were dismantled, descaled and freed from rust, and reassembled. This grew to be a substantial industry for a short time.

New catalysts were investigated for chromium solutions, such as fluosilicic acid and fluoboric acid. Current efficiencies were substantially improved, especially with fluosilicic acid, but the anodes formed hard insulating coatings which greatly increased the resistance to flow of the current. These coatings had to be removed and scraped carefully, a difficult and expensive operation. The control of the catalyst was also difficult.

During the war, the use of chromium was confined to strictly industrial purposes; that is, all of the work was for hard chromium. It was found that heat treatment had no effect on the oxide content of the deposit, but that it would remove the occluded hydrogen. Hydrogen, however, has little effect on the hardness, whereas the oxygen is a very significant element.

In chromium plating dies for cold drawing wire, the chromium plate was found to be better if it was of intermediate hardness of about 750 Vickers, exhibiting better wearing properties than if it had been higher. It was also found that optimum thickness of the hard chromium deposit varied with the use to which the die was to be put.

An interesting aspect of chromium plating in Germany is the use of the vapor phase deposit on steel. This method is applied by heating steel in an atmosphere of a chromium halide at 1650°F or over. The result is, for practical purposes, a chromium-steel surface. The parts so treated suffered no dimensional change whatever, which was a valuable asset. However, this method is very expensive.

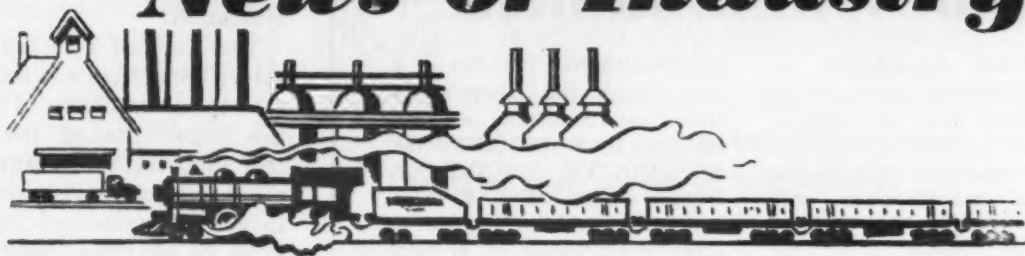
Bright Zinc Popular

Some work was done on the deposition of bright zinc, especially with acid baths. During the war, copper and its alloys were scarce and were replaced, wherever possible, by iron with zinc coatings. Furfural was added to these plating baths to produce smoother, if not actually bright, deposits.

In zinc coating on steel it was discovered that the polarity of zinc and iron are reversed in water above 140°F. Therefore, the use of zinc coatings in steel hot water containers and pipe lines is not to be recommended, although, in some cases, the corrosion products on the zinc coating act to retard further corrosion.

In silver plating, silver anodes have been produced in Germany by powder metallurgy. Some work has also been done on producing a tarnish-resisting silver plate by the addition of zinc or tin in the plating bath, to produce a deposit with 10 or 15 pct Zn or Sn. Such deposits are highly resistant to tarnish, but they do not come up to the Sterling requirements.

News of Industry



Plots Out Expansion

Chicago—Steel industry expansion through the next 20 years was plotted out by Earle C. Smith, chief metallurgist of Republic Steel Corp. He presented data at the annual metal show here that ranged from mineral reserves to production.

In his year by year estimate of steel growth, he said that steel capacity would reach 125 million tons by 1970, supported by expansion of the needed raw materials sources. 100 million tons by 1951 and 101 million tons by 1952. He continued that iron ore supplies could not keep pace with expansion until 1957 when ore imports will top needs. Some steelmen here indicated that future expansion announcements may show that the 10-year 9,500,000 ton expansion contemplated may be surpassed.

Albion Malleable Iron Plans Spending \$1,300,000 on Expansion

Detroit—Albion Malleable Iron Co., Albion, Mich., is adding 91,000 sq ft to provide facilities for trimming, annealing, cleaning, finishing and shipping operations. An investment of \$1,300,000 is involved. The funds will be secured through Reconstruction Finance Corp. and other participation. The government has defined the program as a defense project.

American Cladmetals Boosts Pay

Carnegie, Pa.—Higher living costs were the basis for a voluntary 12¢ an hr pay increase for employees of American Cladmetals Co.

NPA Adds Rules for Handling Steel Orders

Paves way for allocations toward defense-supporting programs . . . Estimate freight car program will take 310,000 tons of steel products each month.

Washington—The National Production Authority last week set up the machinery for steel allocations for defense-supporting purposes by adding a new section to NPA M-1. It provides specific rules for placing, acceptance, and scheduling steel orders for approved programs.

10,000 Cars a Month

The agency moved at once to take advantage of the amended order by approving the freight car program and issuing Supplement 1 (to M-1) which requires the industry to provide 310,000 tons of steel products a month for the program during the first quarter of 1951.

This amount is estimated to provide sufficient materials to build 10,000 cars a month and at the same time provide for repair and maintenance.

The amendment of M-1 adds a new section which states that "NPA will from time to time approve scheduled programs calling for production and delivery of steel products for stated purposes, over specified periods of time. Upon approval, supplements to this order will be issued describing such programs and specifying the manner in which they are to be carried out by the steel industry."

It also provides that NPA will issue directives to individual concerns directing the steel producers to accept certified orders for freight car steel products. However, the car builders are forbidden to use such steel for other than repair or construction of freight cars. Such supplies are also subject to the inventory control regulation.

Steel sold or delivered under directives of the freight car program cannot be counted as having been produced under rated orders for determining the percentages of defense production as set forth in Sec. 20.5 of M-1.

Meanwhile, NPA officials continued this week to study ways of extending controls over three industries—steel products, machine tools, and aluminum.

Protect Small Business

Last week, the Steel Products Industry Advisory Committee told Director D. B. Carson and other officials of the NPA Iron & Steel Division that the government's forthcoming plan for maintaining steel warehouses' inventories must somehow protect the needs of small business.

In the same meeting, NPA officials disclosed that limitations orders applying to the use of co-

INDUSTRIAL SHORTS

CANADIAN ALLIANCE — E. W. BLISS CO., Canton, Ohio, has entered into an alliance with John Bertram & Sons Co., Ltd., Dundas, Ont., whereby the Canadian manufacturer will build the complete line of Bliss mechanical presses, in addition to its own offering in the special machine tool field.

WEST COAST PLANT—A new plant at 4915 Pacific Blvd., Los Angeles has been purchased by BINKS MFG. CO., Chicago. Light manufacturing operations and warehousing for the Los Angeles area will be carried on here.

OPENS BRANCH—A new plant at 2200 West Commerce, Dallas, has been opened by the EARLE M. JORGENSEN CO. of Los Angeles, distributor of steel products. The new branch represents an investment of \$750,000.

IN BUSINESS — The BOSWORTH STEEL TREATING CO. has been formed with a plant at West Chicago Blvd. and Southfield Road, Detroit. Howard N. Bosworth, formerly with Vincent Steel Process Co., is president and James B. Thompson, formerly with Standard Steel Treating Co., is vice-president and treasurer.

TAKES OVER PROPERTY — The SPERRY CORP. has purchased from the U. S. Government at an undisclosed price the entire plant and its 144 acres of land located at Lake Success, Long Island, N. Y. At present the buildings and land are jointly occupied by the corporation's Sperry Gyroscope Co. Div. and the Secretariat headquarters of the United Nations.

IN NEW POST — Dr. Howard Lyle Gottlieb has been appointed development chemist of the BJORKSTEN RESEARCH LABORATORIES, INC., Chicago. He will work on a new type of packaging material being developed by the laboratories, useful for preventing corrosion of metal parts in transit or in warehouses.

ENGINEERING AWARD — A new award, the Henry Ford Memorial Award, has been established by the SOCIETY OF AUTOMOTIVE ENGINEERS, Detroit section. All SAE members under 33 are eligible to compete by means of original papers which have been or are suitable for presentation to an SAE meeting.

BUYS STAMPING FIRM—John A. Evans has purchased the KENWORTH METAL STAMPING CO., Milwaukee, from Nathan R. Cerf. Mr. Evans becomes president and treasurer of the firm but no production personnel will be affected.

NO. 86—The 86th chapter was chartered recently by the AMERICAN SOCIETY OF TOOL ENGINEERS in Dover, N. H. John A. Woodman, mechanical superintendent, General Electric Co., Somersworth, N. H., was elected chairman. Walter H. Harrington was named first vice-chairman and Walter Edwards, second vice-chairman.

ADDS TO LINE — Short-run stampings of phenolic resins, vulcanized fibres, plastics, insulation paper and other nonmetallic materials have been added to their other services by FEDERAL TOOL & MFG. CO. of Minneapolis.

OPENS SALES OFFICE — A new sales office at 2168 Shattuck Ave., Berkeley, Calif., has been opened by the PENNSYLVANIA SALT MFG. CO. R. A. Snyder will do the technical sales service work for metal and maintenance cleaners in industries in California.

GROUP LEADERS—L. B. McKnight, vice-president Chain Belt Co., Milwaukee, was elected president of the CONVEYOR EQUIPMENT MANUFACTURERS ASSN. G. W. Ostrand was named vice-president; Earl D. Stearns, treasurer; and Lee Sekulski, secretary.

balt and nickel are now under consideration.

The Machine Tool Industry Advisory Committee was told by NPA that the government is "aware of the importance of the machine tool industry." The agency indicated it would assist the industry to get the necessary materials—such as bearings, electrical motors and supplies, wire, and other finished and semi-finished goods—needed by the tool builders.

Express Opposition

Representatives of the aluminum fabricating industry, meanwhile, gave general approval to a proposed NPA order designed to distribute defense orders equitably among producers. But the industry expressed opposition to government proposals to cut civilian consumption of aluminum. They said they were opposed to any type of control which would put large numbers of small manufacturers out of business, and pointed out that in such industries as venetian blinds, aluminum roofing, storm sash, etc., the final stages of manufacture are carried out by small firms.

NPA Issues Aluminum Order Setting Rules for Rated Orders

Washington—National Production Authority last week issued supplementary order M-5 establishing percentages and rules for handling rated orders for aluminum. The order applies to both primary and secondary production.

The order requires primary producers to accept rated orders from independent fabricators up to 6½ pct of monthly scheduled production of primary pig and ingot. At the same time, ceilings were set for mandatory acceptance of rated defense orders. The ceiling limitations are as follows:

(1) Producers or fabricators will not be required to accept rated orders for the following products for shipment in any one month in excess of the listed percentages of average monthly shipments of the products during the

first 8 months of 1950: Sheet, plate and strip, 25 pct; extrusions and tubing, 35 pct; rolled shapes, 15 pct; rod, bar, wire and cable, 15 pct; forgings and pressings, 40 pct; castings, 20 pct; secondary ingots, 25 pct; and all other mill products, each, 20 pct.

(2) Producers of primary aluminum are not required to accept rated orders for shipment in any one month of a total tonnage of products, including pig and ingot, in excess of 25 pct of their scheduled production of total primary pig tonnage for that month.

(3) Producers of secondary aluminum are not required to accept rated orders for shipment in any one month of a total tonnage of aluminum products, including ingots, in excess of 25 pct of their scheduled production of total ingot tonnage for that month.

(4) Aluminum fabricators are not required to accept rated orders for shipment in any one month of a total tonnage of aluminum products in excess of 25 pct of their average monthly shipments during the first 8 months of 1950.

(5) Unless specifically directed by NPA, no distributor or jobber of aluminum products shall be required to accept rated orders for shipment in any one month of a total tonnage of aluminum products in excess of 25 pct of the products available to him during such month.

The order also provides that the NPA from time to time may establish "special programs" (similar to the steel freight car program) calling for rated orders for products in "support" of the defense program.

A lead time of 60 days is provided. Neither producer nor fabricator is required to accept a rated order which is received less than 60 days before the first of the month in which shipment is asked.

Revere Reports 9 Month Earnings

New York—Revere Copper & Brass, Inc., for the 9 months ending Sept. 30, 1950, reports net income of \$8,579,292.99.

Hot Ingot Shipped 200 Miles by Canadian Mill

Cut 2 months from processing time in fulfillment of steel-makers' dream . . . Loses only 125° in transit . . . Danger of cracking while cooling-off is eliminated.

Sydney, N. S.—Dominion Steel & Coal Corp., Ltd., has introduced a new chapter in the Canadian steel industry. The company has introduced "hot shipping" which is said to cut 2 months from its processing methods.

The experiment, described as the first of its kind ever attempted, entailed moving a 30,000 lb steel ingot at 1700 degrees Fahrenheit, some 200 miles from the steel mills here to the Trenton Steel Works at Trenton, N. S.

The undertaking was accomplished with a loss of 125 deg. F, and in addition to saving considerable time in cooling and reheating, transportation while hot eliminated the danger of the ingot cracking while cooling off.

Dream Fulfilled

A steel company official stated that "the idea had been dreamed of for years, but this is the first time anyone actually got around to trying it." He could not immediately estimate the actual saving in dollars the hot shipment meant, but pointed out that the saving in time was tremendous.

The ingot was poured at the Sydney plant, and as soon as it had solidified, was stripped and placed

in a cast iron box, insulated with pre-mounted vermiculite. The remaining space was filled with loose vermiculite, and the box was sealed with a steel lid. The whole thing was bolted to the floor of the railway car.

Early the following morning, workmen at the Trenton plant were continuing processing, with the ingot still at 1575 deg. F.

Scrap Dealer Is Forgotten Man, Says Iron Age's Campbell

Cleveland—The scrap dealer is being overlooked by both industry and government in their approach to the steel production-steel capacity problem, said Tom C. Campbell, editor of THE IRON AGE, speaking before the Northern Ohio Chapter, Institute of Scrap Iron & Steel.

The scrap people must deliver at least 25 pct of total metallics that go into a ton of steel. At the present rate of steelmaking—100 million tons a year—scrap dealers must garner about 25 million tons of scrap. "If they fail the present high level of steelmaking can't be held for long," Mr. Campbell declared.

Discussing the possibility of a price ceiling on scrap, Mr. Campbell said, "If scrap prices are frozen at or near today's levels it will not help steel production or future capacity additions . . . Only a free scrap market can bring out tonnage necessary when there is no war but an emergency in defense building . . . Efforts to make a so-called formula price based on a \$44 a ton price for No. 1 heavy melting steel at Pittsburgh can be no more successful than putting on a ceiling. Scrap is not a controlled market. It is based on supply and demand."



"What's wrong with asking for a file by its right name?"

Aluminum Nails Gain Favor Among Users

Postwar product graduates from substitute status as wider market recognizes advantages . . . 1400 tons made in 1949 production . . . Makers promote products—by R. L. Hatschek

New York—The aluminum nail, essentially a postwar product, is beginning to come into its own. The steel shortage of 1948 provided the foothold necessary for this product to be firmly introduced to nail users and, although aluminum nail sales dropped sharply when steel nails again became available in February 1949, the market for aluminum nails has climbed steadily since June 1949.

More Per Pound

During 1949, ferrous nail production was 660,156 net tons excluding cement coated nails, cut nails, and wire staples. For the same period, 1400 tons of aluminum and about 2000 tons of other nonferrous nails were produced. Of the ferrous nails, 86,224 tons were galvanized.

It should be pointed out that

there are about three times as many aluminum nails per lb as there are in a pound of either steel or other nonferrous nails. Thus, in 1949, there were a little more than twice as many nails made of aluminum than other nonferrous metals.

While aluminum nail production represents only about 0.6 pct of the total number of nails made during the year, they are losing the status of a substitute and are rapidly becoming a recognized special-purpose product in their own right.

The main reason for this is the aluminum nail itself. It is rust-free and will not stain, no galvanic action is set up when it is used with aluminum roofing and siding, it is light in weight, attractive in appearance, and cheaper than other nonferrous nails and not much more expen-

sive than the common variety of ferrous nails.

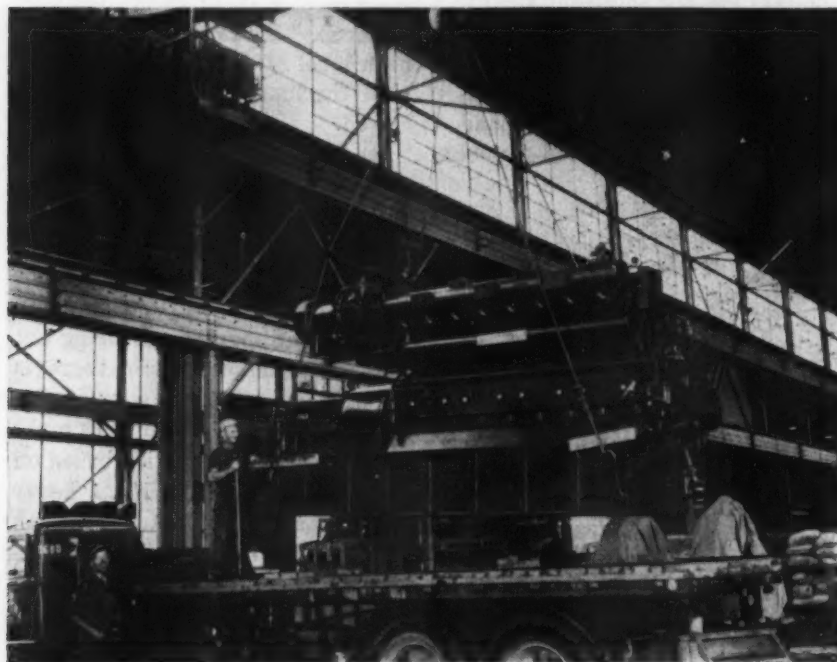
Considering total cost, aluminum is cheaper in some instances because it eliminates the necessity of countersinking and puttying, and because its freedom from rust lengthens the period of time between required painting.

Some industrial groups are fostering aluminum nails because they aid their own products in giving improved performance. Some of these are Pittsburgh Plate Glass' paint division, the California Redwood Assn., the Red Cedar Shingle Bureau, the Gypsum Assn., the Ceramic Tile Roofers, and some lumber companies.

The aluminum nail manufacturers themselves have been a potent factor in the growth of demand for their products. They have done extensive research and product development, conducted vigorous advertising and promotion campaigns, and taken great strides in the packaging of aluminum nails.

All of these factors have had a significant effect on the attitude of builders and other nail users. And this effect has been a good one for the aluminum nail inasmuch as it is now ridding itself of its original position as a substitute.

MARINE DIESEL: This Superior Diesel engine is loaded for shipment from the National Supply Co.'s Engine Div., Springfield, Ohio. It is one of four being built by National Supply for river towboats to be built by the Pittsburgh Consolidation Coal Co.



August Motor Freight Report Shows 19.7 Pct Increase Over July

Washington — The volume of freight transported by motor carriers in August 1950, increased 19.7 pct over July 1950, and 35.8 pct over August 1949, according to the American Trucking Assn.

Comparable reports received by ATA from 295 carriers in 42 states showed these carriers transported an aggregate of 4,813,182 tons in August against 4,019,647 tons in July and 3,544,167 tons in August 1949.

Approximately 73 pct of all tonnage transported in the month was hauled by carriers of general freight. The volume in this cate-

gory increased 21.5 pct over July and 38.7 pct over August 1949.

Transportation of petroleum products, accounting for about 14 pct of the total tonnage, showed increases of 8.4 pct over July and 16.3 pct over August 1949.

Iron and steel truckers hauled about 7 pct of the total tonnage of 4,813,182 transported by highway carriers in August, American Trucking Assn. reported. Their volume of business increased 15.3 pct over July and 52.4 pct over August 1949.

Wide Range of Goods Hauled

About 6 pct of the tonnage reported consisted of miscellaneous commodities, including household goods, textiles, groceries, meats, heavy machinery, cement, agricultural products, tobacco, motor vehicles, motor vehicle parts, building materials and chemicals. Tonnage in this class increased 34.2 pct over July and 36.2 pct over August 1949.

The August tonnage of Eastern district carriers represented an increase of 20.6 pct over July and 37.3 pct over August 1949. Carriers in the Southern region reported increases of 30.8 pct over July and 38.5 pct over August 1949. Tonnage from the Western district revealed an increase of 15.1 pct over July and 32.7 pct over August 1949.

GM's Wilson Scores Steel For Inadequate Expansion Record

Chicago—A bolt from the blue stunned steelmen at last week's business forum at the National Metal Congress here. Charles E. Wilson, president of General Motors, said that the steel industry's "blurred vision" in following production trends has led to inadequate expansion not equal to demand. Mr. Wilson followed Edward L. Ryerson, chairman of Inland Steel Co., to the mike.

Mr. Wilson charged that steel had expanded its capacity only by eight times since 1900 while other industries had far surpassed it. He bluntly said that steel did not

have enough confidence in the country and underestimated the number of people to be employed and the added amount of steel needed because of technological advances. Thus the industry's expansion was inadequate, he said.

Mr. Ryerson decried the unreal-

istic attitude of government planners aiming at socialism and seeking fantastic expansion in the next 2 years. He said they did not consider the growth of raw materials tributaries to actual steel output needed. (See p. 108 for fuller account of Mr. Ryerson's speech.)

Titanium Standards and Extras Established

Sheet, strip, plate, bar, wire, and forgings covered by Titanium Metals Corp. price and extra sheet . . . First time such specifications have been set up.

New York—As proof that titanium is becoming a commercial metal, a list of standard sizes, base prices, and extras have been published for titanium mill products by Titanium Metals Corp. of America. These standards have been set up for sheet, strip, bar, wire, and forgings of commercially pure and alloy grades.

Base price for sheet and strip is \$15 per lb; for plate (over 3/16 in.) it is \$12 per lb; for forgings, hot-rolled and forged bars it is \$6 per lb; and for wire, the base is \$10 per lb. Base weight for all products is 10,000 lb and over with extras per lb as follows: Sheet and strip, 5000 to 9999 lb, \$1; 1000 to 4999 lb, \$2; 500 to 999 lb, \$3; 200 to 499 lb, \$4; 50 to 199 lb, \$5;

1 to 49 lb, \$6; samples under 1/2 lb will be supplied in convenient sizes for \$10.

Weight and Finish Extras

Weight extras on plate, bars, wire, and forgings vary only slightly from these. Finish extras for sheet are listed. Hot-rolled, annealed, and pickled is the base. Cold-rolled, annealed, and pickled is 25¢ per lb extra. The plate base is hot-rolled, scale remaining, and not heat treated. For 25¢ per lb, this will be annealed or heat treated, and for 50¢ it will also be blast cleaned or pickled. The last finish is the one most usually desired.

The finish base for strip is cold-rolled, annealed, and pickled, and for 50¢ it will be re-rolled. Square slit edges, rolled or filed are 75¢ extra and a round or square rolled edge costs \$1 more.

Sheet Sizes Listed

Available sheet sizes are: 0.020 in. min, cold-rolled, with max size 24 x 72 in.; 0.025 in. min, cold-rolled, max size 36 x 96 in.; 0.031 in. min, cold-rolled, max size 48 x 96 in.; 0.031 to 0.125 in., max size 48 to 120 in.; and over 0.125 in., max size 36 x 96 in. Under 24 in. width is considered to be strip and over 3/16 in. thickness is considered plate.

Plates are available in thicknesses from 3/16 in. to 2 in., in widths up to 72 in., and lengths to 120 in. where the total weight is



"Sir, I must ask for a raise based upon my superior performance since I started here yesterday."

less than 1000 lb. Strip can be obtained in thicknesses from 0.002 to 0.019 in., in widths up to 14 in. From 0.010 to 0.150 in. thickness, the max width is 20 in.

Round wire and bar are made in diameters from 0.011 to 7 in. at base price. Smaller sizes and special shapes are also available.

Titanium Metals Corp. has also established specifications covering size tolerances, weight tolerances, average weight of titanium for each product, cutting extras, and packing extras. For space considerations, all of these could not be listed here.

All shipments are made f.o.b. mill. The producing mills and their products are: Brackenridge, Pa., for sheet and plate; West Leechburg, Pa., for strip; Watervliet, N. Y., for bars, billets, and forgings; Dunkirk, N. Y., for wire and bars in hot-rolled coils; and Detroit for forgings.

Pullman Orders at New High

Chicago—During the first 9 months of the year orders for 33,000 freight cars were placed with the Pullman Standard Car Mfg. Co. Of these, 10,550 were ordered by Equitable Life Assurance Co. for leasing to various railroads. The amount of freight cars ordered from the company during the third quarter was the largest on record for any 3 month period.

Net income of Pullman Standard's parent company, Pullman, Inc., totalled \$6,734,147 for the first 9 months as compared with \$4,973,886 for the corresponding period last year.

Ferro Gets Large Furnace Order

Cleveland—Ferro Enamel Corp. has booked a \$1 million order for six continuous porcelain enameling furnaces, according to R. A. Weaver, Ferro board chairman. The order is the largest individual contract Ferro has ever closed. The furnaces are for a home appliance manufacturer and will be completed within 9 months.

K. T. Keller Named Adviser On U.S. Guided Missile Program

Detroit—K. T. Keller, president of Chrysler Corp., will serve as an adviser on the U. S. armed services' guided-missiles program. Since World War II, Mr. Keller has been working with the government in connection with manufacture and supply on the atom bomb project and with the ordinance department and other branches of the service.

AISI Holds Regional Meeting

Birmingham—Some 250 members of the American Iron and Steel Institute and guests attended the 1-day regional meeting at the Hotel Thomas Jefferson here last week.

Recent contributions by iron and steel plants in the South to the development of the industry were described. Those participating were: L. A. Miller, vice-president, Tennessee Products & Chemical Corp.; J. H. Middleton, chief metallurgist, Gulfsteel Div., Republic Steel Corp., and H. E. Warren, Jr., division superintendent, Homestead works, Carnegie-Illinois Steel Co.

Ross Industries Contracts For New 75,000 Sq Ft Building

Highland Park, N. J.—Ross Industries Corp., parent company for J. A. Ross Engineering Corp., air processing and drying equipment manufacturers, has contracted with H. K. Ferguson Co. for erection of a steel and brick building. The \$900,000 project will provide 75,000 additional sq ft of floor space.

Canadian Pipe Shop Opened

Edmonton, Alberta—A pipe fabricating shop with a 400-ton-per-month operating capacity has been opened here by Canadian Kellogg Ltd. to service the rapidly expanding requirements for power and processing piping in western Canada.

The new shop is equipped to

turn out carbon steel and low chrome piping, and can also handle specialty materials such as stainless steel and high nickel alloys in a full range of pipe sizes. The plant is being operated by technicians trained by the parent company, M. W. Kellogg, N. Y.

Ryerson Labels Davidson's Steel Proposal "Sheer Nonsense"

Chicago—A proposal by C. Girard Davidson, assistant secretary of the Interior, that the steel industry be forced to lift annual capacity by 20 to 30 million tons a year was termed "sheer nonsense" by Edward L. Ryerson, chairman of Inland Steel Co.

Ryerson told the business forum of the ASM at the 1950 Metal Congress and Exposition that such proposals are establishing the pattern for the new socialization drive to nationalize the steel industry. He said that Davidson showed a complete lack of knowledge of steel industry operations in making such a proposal.

In outlining the difficulties of procuring manpower, materials and capital for such an expansion Ryerson said that it would take 5 years for shipbuilding facilities on the Great Lakes to build ore boats to transport the ore for a 20 million ton expansion.

GE's Jet Division to Move

Lynn, Mass.—Removal of executive and engineering staffs of General Electric Co.'s Aircraft Gas Turbine Div. to Lockland, Ohio, and increase of its present manufacturing operation there have been announced by C. W. LaPierre, manager of the Lynn plant. Increased space at Lockland will permit expansion of GE's jet manufacturing facilities.

Add More Research Space

Beacon, N. Y.—Increasing research facilities by about 40 pct, the latest major unit in The Texas Co.'s expansion program has been completed at the firm's main lab here.

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AGE



Atlas Knows Its Men

• George Emerson, a gager on Atlas Steels Ltd. new 26-in. mill in Welland, Ont., is proof that mass production and standardization of modern industry hasn't deprived its workmen of their individuality. Atlas knows its workers and wants the world to know them. George Emerson—that pencil in his hat might be a feather—is a former West Coast heavyweight champ, stevedore, and lumberjack. He also does oil painting, plays violin for dances, owns his own home. He's shown with precision tools he made in his own workshop. (photo by Karsh).

Belt Conveyers May Go To War, Suggests Conference Paper

Von Thaden tells of advantages of conveyers for military uses

Buffalo — Belt conveyers may find their way to the war fronts. They may be used to supplement and sometimes supplant other forms of military transportation from dockside or beachhead to forward supply depots, suggested H. Von Thaden, of Hewitt-Robbins, Inc., in a paper presented before more than 115 engineers attending the third biennial materials handling conference sponsored by Westinghouse Electric Corp. in Buffalo last week.

Easily dismantled 200 ft conveyor units are just as easily shipped, would cut down manual handling, and do not require laboriously constructed truck highways, he said.

The "Stacker Crane"

Among the papers was the story of the "stacker crane" by F. A. Miller, E. I. du Pont de Nemours and Co. Developed by du Pont for use where maximum accessibility to warehoused goods is required, the stacker crane performs the functions of a fork truck with an assembly suspended from an overhead crane. Width of aisles can be cut from that necessary when a fork truck is used, increasing the useful storage space.

E. R. Frost, of General Motors Fisher Body Div., described the coordination of materials handling and engineering at his company. The standard classifications of materials handling equipment being developed by the American Material Handling Society were described in a paper by H. H. Hall, Aluminum Co. of America.

A two-part paper by A. W. Lemon, Jeffrey Mfg. Co., and A. D. Sinden, Stevens Adamson Mfg. Co., reported on tests of long conveyers, made to provide data for the proposed Riverlake belt conveyor project.

W. M. Chapman, Westinghouse Electric International Co., discussed European market condi-

tions as they will be following the end of ECA. Other conference papers were by F. M. Blum, Harnischfeger Corp.; R. C. Sollenberger, Conveyor Equip. Mfgs. Assn.; E. C. Rice, Whiting Corp.; H. Von Taden, Hewitt Robbins, Inc.; F. L. Lock, Yale & Towne Inc.; F. R. Tomlinson, A. B. Farquhar Co.; S. C. Marshall, Sauerman Bors, and I. R. Smith, W. R. Wickerman, and E. C. Watson, of Westinghouse. The banquet speaker was A. T. Gaudreau of Gaudreau, Rimbach & Associates.

Defense Plant Amortization Forms Now Available from NSRB

Washington—Application forms to be used by businessmen in applying for permission to write off defense plant and equipment in 5 years were being issued by the government this week for the first time since World War II.

The National Security Resources Board is distributing both the application form S for the all-important "Certificates of Necessity," and detailed regulations which spell out the conditions under which business firms may qualify for the 60-month write-offs on their defense facilities.

Applications for permission to amortize defense facilities over a 5-year period must be filed first with NSRB. The applications then will be sorted and assigned to the appropriate agencies of government which will examine the applications and make recommendations. The final decisions are solely the responsibility of NSRB.

Liberal Policy Indicated

The regulations issued by NSRB covering the issuance of the certificates indicate that a liberal policy will be following in approving the fast write-off for either direct or indirect defense needs or standby purposes. On used or existing property, however, NSRB will not issue a certificate unless a substantial increase in the usefulness of the facility for national defense cannot be achieved in any other way, i.e., or a loss in useful-

ness would result if such property were not obtained.

NSRB will also be tough on replacement of property and will not certify land unless directly related to the production, storage, transportation or protection of supplies necessary in the interest of national defense. The fast write-off can be obtained on plants and facilities constructed or installed after Dec. 31, 1949.

File Within 6 Months

Applications for necessity certificates for facilities upon which construction, reconstruction, erection or installation is begun, or which are acquired, after Sept. 23, 1950, must be filed within 6 months after the beginning of construction or the date of acquisition. Also, application for certificates for facilities upon which construction was begun or which were acquired on or before Sept. 23, 1950, must be filed on or before Mar. 23, 1951.

The application forms and text of the regulations are available at room 5803, Commerce Dept., Washington 25, D. C., and at 1725 F Street, N. W., Washington, D. C., and at the field office of the Commerce Dept.

Kaiser Pays Back RFC Loan

San Francisco — Climaxing the largest single industrial financing venture ever undertaken in the Far West, Henry J. Kaiser handed Reconstruction Finance Corp. officials at the New York Chase National Bank a \$91,185,990.80 check this week in full payment of the government loan which financed the building of the Kaiser Steel Corp. plant at Fontana, Calif.

Repayment was made possible by the public offering of securities last week. They were sold out on the day they were offered. In paying off RFC, it was reported that Kaiser was actually returning \$1.23 for every dollar borrowed. Interest amounted to \$22,944,604 on the loan. It was made early in 1942 and was later increased.

Of the 15,000 investors in Kaiser Steel stock, 40 pct live in the Far West.



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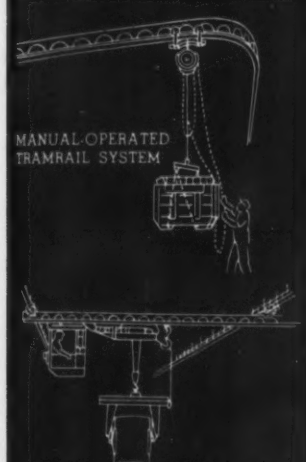
Arches reduce weight without sacrifice of strength.

RAISED WEARING TREADS

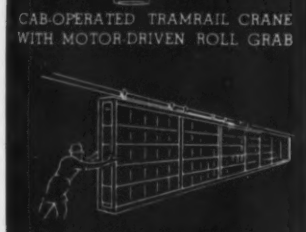
Raised treads prevent rail peining and provide a wear factor not obtainable with any other single-piece rail. There are no separately mounted rails or wear treads to loosen and require maintenance.

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Arch Beam . . . A SUPERIOR OVERHEAD TRACK

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OVERHEAD MATERIALS HANDLING EQUIPMENT

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Canadians Face Tight Steel Supplies; Look for British Aid

Use quota basis as demands consume production; defense orders to come

Toronto — Faced with a large carryover of unfilled steel mill orders in 1951, increased tonnage demands to meet the Canadian defense program, and dwindling supplies from the United States, Canadian steel consumers are casting a hopeful and anxious eye on British tonnage allotments for the coming year. Canadian supplies are expected to remain tight for 6 months.

Inquiries for steel are appearing in large number and consumers, generally, are endeavoring to place large orders for future delivery. On heavy structural steel Canadian suppliers are solidly booked to the end of March. The government is reported planning reduction in some construction

programs involving structurals pending improved supply.

In an effort to cope with expanding demand, steel producers have placed a number of items on a strict quota basis. These include galvanized, hot-rolled and cold-rolled sheets. Steel plates may be next on the list, and, with heavy demand for hot-rolled steel bars these, too, may be added.

While Canada's defense program has not taken large tonnage to date, demand is increasing and within the next 6 months large tonnages will be involved.

Masonite Office Moves to Chicago

New York — Masonite Corp.'s chemical division headquarters here have been moved to the Chicago home office. Organizer of the division 2 years ago, Thomas M. O'Neil will continue as manager and will handle sales research.

Ban Nonessential Building; Present Construction Is Excepted

Washington — The expected ban upon construction of new buildings for amusement, recreational or entertainment purposes was ordered last week by the National Production Authority. It became effective Oct. 27.

Exemptions Permitted

At the same time, NPA officials hinted other types of construction which "do not further the defense effort" might also be placed under the ban (NPA M-1) which includes two-score general classifications. These range from bandstands and amusement parks to night clubs and theaters. Both public and private programs are affected.

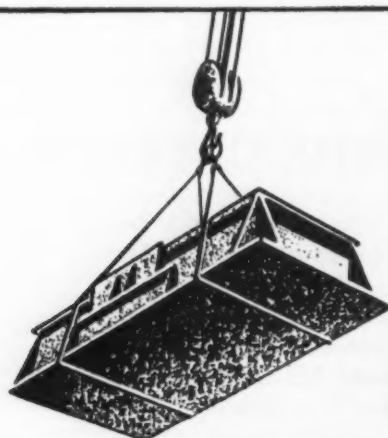
The order did not apply to construction already started or to planned construction for which the total cost is not over \$5000. Also exempted was Defense Dept. and Atomic Energy Commission projects.

Housing Administrator Raymond Foley, who has urged all construction be controlled, estimates housing must be cut back from some 1,300,000 units this year to about 800,000 for 1951. Contractors say the present credit curbs are more likely to cut the 1951 number to 600,000.

"Controlism" Scored by Lamb

Cleveland — Warning against "controlism" as a permanent political philosophy, Harold C. Lamb, assistant general counsel, Republic Steel Corp., told the Purchasing Agents Assn. of Cleveland "it would be a big mistake to plan on an early return to business as usual after the fighting in Korea ceases."

Objecting to permanent, broad economic controls, Mr. Lamb said, "It would be ironic if in girding ourselves for a death struggle with these isms, we unconsciously were duped into accepting them as our permanent pattern of living."



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In Los Angeles his name is Joe, in Cleveland it's Harvey. Like his "brothers" in principal cities throughout the country, he is *your* key to lower steel inventories, more helpful information, *complete assistance* in the use of tool, alloy, or stainless steel. He's the fellow on the telephone order desk at your nearest Carpenter MILL-BRANCH WAREHOUSE.

The first time you call him, you'll discover you're getting something *more* than "just steel service". For he is backed by a MILL-BRANCH WAREHOUSE organization. It starts with complete stocks in a wide range of sizes and grades. It embraces "trouble-shooting service" right in your own plant. It is backed by trained delivery crews and modern equipment to process orders, fast.

Most important—it is *part and parcel* of the specialty Mill in Reading. Every time you call your Carpenter MILL-BRANCH WAREHOUSE you benefit from Mill Laboratory and Metallurgical Help, Mill Quality Controls—*comprehensive Mill Service*.

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Whenever you want specific job recommendations, help with a problem or top-quality steel, get it by calling Carpenter. Try it and see. Simply pick up your phone and talk to the man on the order desk at your nearest Carpenter MILL-BRANCH WAREHOUSE or Distributor. The Carpenter Steel Co., 121 W. Bern St., Reading, Pa.



SPECIALTY TOOL • ALLOY • AND • STAINLESS STEELS

November 2, 1950

113

UNIVERSITY OF MICHIGAN LIBRARIES

FTC Expected to Adopt Basing Point Decision for Corn Products

Washington—Final action by the Federal Trade Commission against basing-point pricing in the corn-products industry is due next month.

The FTC is expected to adopt the decision of one of its trial examiners which requires nine manufacturers of corn derivatives and seven of their sales subsidiaries to cease and desist from conspiring to fix prices in violation of the FTC Act.

The order will take effect Nov. 22 unless the commission stays the effective date or places the case on its docket for review. The respondents have agreed not to appeal.

The order will prohibit basing-point and zone systems of pricing when such systems are the

result of "any planned common course of action, agreement, understanding, combination or conspiracy" among the respondent companies. The order also requires discontinuance of discriminatory pricing practices which FTC says are violative of the Clayton Antitrust Act, as amended by the Robinson-Patman Act.

Billet Separator Saves Labor

Pittsburgh—A mechanical billet separator, almost completely automatic and capable of serving a continuous mill operating at 50 tons per hour for one hour and a half or longer, has been developed by United Engineering and Foundry Co. The machine will handle five or more bundles of billets, weighing 15 tons each, and up to 30 ft in length. No manual labor is required.

Cambria County Coke Reserve Report Made by Bureau of Mines

Washington—Coking coal reserves of Cambria County, Pa., are estimated at 2400 million tons in beds 14 to 28 inches thick, according to a Bureau of Mines survey released this week.

The report, first of a nationwide series undertaken at request of the Munitions Board, aims to avert emergency shortages similar to those which hampered steel production in World War II. Known recoverable reserves, upgrading of marginal coals, and carbonizing properties of seldom-used coals and blends will be studied.

The Cambria report shows 1900 million tons in beds over 28 inches. Cambria mining history shows an average recovery of 47.88 pct. Future recovery may be higher.

Aluminum Shipments Up 25 Pct

New York—Reflecting response to military demands, member companies of the Aluminum Assn. have reported a 25 pct increase in shipments of sheet and plate during August over July. August shipments totaled 113,531,771 lbs compared with 90,937,020 lbs in July. Shipments of permanent mold rough castings (except pistons) by members of the association's foundry division totaled 2,938,635 lbs in August compared with 1,996,047 lbs in July.

Chemical Treatment Aids Jets

Pittsburgh—A new chemical treatment developed by Dr. Howard N. Elsey, of Westinghouse Research Laboratories, is extending the range of jet planes by prolonging the life of carbon brushes.

The development promotes formation of a lubricating film between the brushes and commutator of the plane generator in the extremely dry air of high altitudes as well as during the starting phase of jet-engines using starter-generators, when temperatures as high as 1000° F are encountered.



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DOES 101 JOBS AT
WEIRTON STEEL

KRANE KAR handles spare blooms for Blooming Mill, large slabs for Rolling Mill, charge boxes in Open Hearth, bars in Cold Drawn Bar Mill (finally loads them into railroad cars), changes rolls and bumper plates in Steel Strip Mill, and stands by to relieve heavy duty overhead cranes; transports all kinds of loads in Machine Shop, Construction and Maintenance Depts. With clamshell bucket, **KRANE KAR** moves sand in Welding and Foundry Depts., and coke in Coke Dept. Ask for illustrated Bulletin 89—"How Metalworking Plants Reduce Materials Handling Costs."

Gas or diesel, 12 to 37 ft. booms or adjustable telescopic booms; solid or pneumatic rubber tires. Buckets, magnets, and other accessories available.

THE ORIGINAL SWING BOOM MOBILE CRANE
WITH FRONT-WHEEL DRIVE AND REAR-WHEEL STEER
1½, 2½, 5, AND 10 TON CAPACITIES

KRANE KAR
TRADE MARK REGISTERED

USERS: Carnegie-Illinois, U.S. Steel, Bethlehem, Youngstown S & T, Basic Magnesium, Lima Locomotive, General Motors, Pullman Standard, etc.

SILENT HOIST & CRANE CO., 851 63rd ST., BROOKLYN 20, N. Y.

20 French Experts Tour U.S.; Study Industry Business Methods

Washington—France's basic industries are benefiting by American proficiency in manufacturing steel and malleable iron castings through studies now being made in the United States by French experts.

A 20-man team, representing management, labor and engineering, is touring the United States for 6 weeks studying plant layout, technical processes, labor relations and marketing methods. There are about 100 steel castings foundries in France and about 50 malleable iron foundries, which together employ more than 20,000 workers, plus foremen, supervisors and executives.

Start Langley Field Laboratory

Birmingham—The Rust Engineering Co. has started construction of a gas dynamics and internal flow laboratory for the National Advisory Committee for Aeronautics at Langley Field, Va. Cost will be approximately \$4,000,000. Five units are being built, the largest being a two-story building 226 feet long and 170 feet wide. The buildings are of steel frame, brick and concrete.

MP to Add 124 Diesel Electrics

St. Louis — Missouri Pacific Railroad will add 124 diesel electric locomotives and four planetarium type coaches at a cost of \$17,820,900 under authorization by Federal Judge George H. Moore. Of the new units, 104 diesels and three coaches will be used by Missouri Pacific; 12 diesels by St. Louis, Brownsville & Mexico, and eight diesels and one coach by International-Great Northern.

Sternoff Heads Scrap Group

Seattle—Carl Sternoff, president of Sternoff Metals & Iron Works, this city, has been re-elected president of the Pacific Northwest chapter of the Institute of Scrap Iron & Steel, Inc.



Vehicles Roll Easily, Safely on Skid-Resistant U·S·S MULTIGRIP FLOOR PLATE

● Vehicles roll straight and true on U·S·S Multigrip Floor Plate. There are no gutters to catch a narrow-wheeled vehicle . . . wheels roll on the flat-topped risers, not between them. And the sloping sides of the risers make it impossible to catch the toe of a shoe on them.

Multigrip is easy to clean, too. There are no pockets in which grease, dirt and water can accumulate . . . drainage is complete in any direction.

Get complete information about safe, permanent U·S·S Multigrip Floor Plate at your nearest steel warehouse, or write to us direct.

Carnegie-Illinois Steel Corporation, Pittsburgh
Columbia Steel Company, San Francisco
Tennessee Coal, Iron & Railroad Company, Birmingham
United States Steel Supply Company,
Warehouse Distributors, Coast-to-Coast
United States Steel Export Company, New York

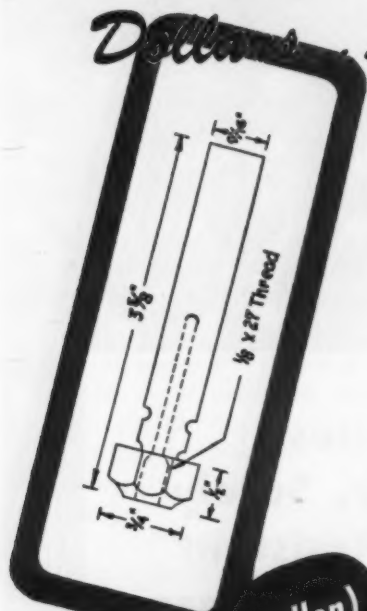


MULTIGRIP FLOOR PLATE

UNITED STATES STEEL

How to trade Pennies for

Dollars...



10c more (per gallon)
invested in cutting fluids
SAVES \$50 PER DAY
PER MACHINE!

PRICE alone makes no profit. The drawing above illustrates a shackle bolt which is drilled and tapped on a New Britain Automatic. Using an inferior cutting oil 12 taps were used up every 2 1/2 days—12 pieces per tap. A change to Stuart's SPEEDKUT M on a 2 1/2 day run showed 530 pieces per tap—no taps used up. The saving? Taking into full account the pennies—higher price of Stuart quality oil: \$50 per day per machine!

If you are interested in a saving like this, ask to have a Stuart representative call. There is no obligation—we'll let Stuart performance do the selling.

Send for your copy of
"CUTTING FLUID FACTS"
Stuart's booklet of
cutting fluid data.

D.A. Stuart Oil CO.

2737 S. Troy Street, Chicago 23, Illinois

• News of Industry •



STEEL CONSTRUCTION NEWS

Fabricated steel inquiries this week included the following:

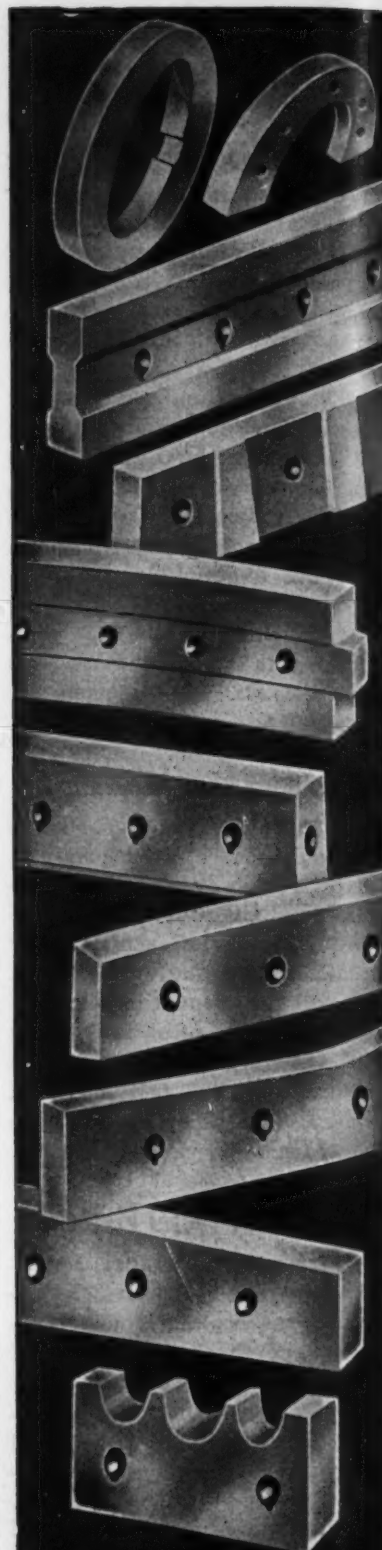
- 1046 Tons, Boston, steel superstructure for channel span between Boston and Charlestown near Warren Bridge (part of the new Boston Central Artery).
- 557 Tons, Indiana Co., Pa. Construction of reinforced concrete pavement with two (2) deck plate girder bridges and drainage excavation. Secretary of Highways, Harrisburg, Pa. Bids due November 10, 1950.
- 146 Tons, Northumberland and Montour Co., Pa. Construction of aggregate base, including three (3) structures; one (1) I-beam bridge and one (1) reinforced concrete bridge. Secretary of Highways, Harrisburg, Pa. Bids due November 10, 1950.
- 104 Tons, New Haven, Conn., 54 foot span rolled I-beam bridge, located on harborfront, relocation of U. S. Route 1. C. W. Blakeslee and Sons, New Haven, low bidder.

Reinforcing bar inquiries this week included the following:

- 900 Tons, Beaver County, Pa., LR 77 highway job.
- 725 Tons, Pittsburgh, municipal outdoor amphitheatre.
- 500 Tons, Marietta, Ohio, Electro Metallurgical Div. Union Carbide and Carbon Co.
- 500 Tons, Grand Forks, N. D., St. Michael Hospital.
- 314 Tons, Cincinnati, Beechmont Levy.
- 255 Tons, Milwaukee, Chain Belt Co.
- 205 Tons, Gary, Ind., Municipal Court and Jail.
- 197 Tons, Indiana Co., Pa. Construction of reinforced concrete pavement with two (2) deck plate girder bridges and drainage excavation. Secretary of Highways, Harrisburg, Pa. Bids due November 10, 1950.
- 160 Tons, Columbus, Ohio, Eshelman Grain Co.
- 140 Tons, Akron, state highway project 492.
- 125 Tons, Alliance, Ohio, high school.
- 118 Tons, Chicago, International Harvester Co.
- 155 Tons, Palatine, Ill., high school.
- 100 Tons, Northumberland and Montour Co., Pa. Construction of aggregate base, including three (3) structures; one (1) I-beam bridge and one (1) reinforced concrete bridge. Secretary of Highways, Harrisburg, Pa. Bids due November 10, 1950.

Reinforcing bar awards this week included the following:

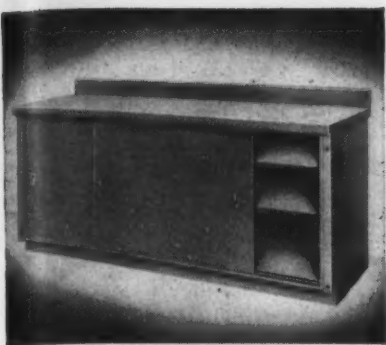
- 700 Tons, Port Washington, Wis., Wisconsin Electric Co. to Pipkorn Co.
- 500 Tons, Milwaukee, Schlitz Brewing Co., Jos. T. Ryerson and Son, Chicago.
- 370 Tons, Norfolk, Mass., the wall starting the new Massachusetts State Prison replacing the one in Charlestown (Boston), Mass., through Wexler Construction Co., Brookline, Mass., to Joseph T. Ryerson and Sons, Inc., Cambridge, Mass.
- 250 Tons, Milwaukee, Miller Brewing Co., to Jos. T. Ryerson and Son.
- 210 Tons, Allegheny and Butler Counties, Pa., LR 246 highway project, to Jones and Laughlin.



Greater Tonnage
Per Edge of Blade



**AMERICAN
SHEAR KNIFE CO.**
HOMESTEAD · PENNSYLVANIA



ARISTOCRAT OF WORK BENCHES

... built for men accustomed to the finest tools and equipment.

We "pulled out all the stops" when we designed the HALLOWELL Cabinet Bench, giving it more "custom" features than any other stock bench we know of. All-steel construction, choice of top materials, ample storage space, standardized units, interchangeable accessories, and trim good looks are just a few of its advantages.

Bulletin 702 tells the story.
Write for your copy today!

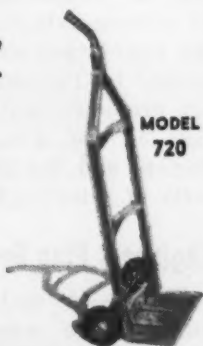
NEW!

HALLOWELL "UNI-TRUK" HAND TRUCKS

Available with one
or two handles ...
send for Form
757-1.

"TRY ONE AND
YOU WILL BUY
MORE!"

PAT. APPLIED FOR



MODEL
720

HALLOWELL

SHOP EQUIPMENT OF STEEL
OVER 47 YEARS IN BUSINESS

STANDARD PRESSED STEEL CO.

JENKINTOWN 17, PENNSYLVANIA

• News of Industry •

- 200 Tons, Blue Island, Ill., contract 18-C, Calumet intercepting sewer, to U. S. Steel Supply Corp., Chicago.
- 190 Tons, East Chicago, Ind., Socony Vacuum Oil Co., to Jos. T. Ryerson and son.
- 190 Tons, East Hudson, Wis., bridge to Olney, J. Dean Co., Chicago.
- 175 Tons, Merrimack, Mass., two new Merrimack College buildings through P. S. Beresford, Medford, Mass., to Joseph T. Ryerson and Son, Inc., Cambridge, Mass.
- 160 Tons, Milwaukee, 24th Street School, to U. S. Steel Supply Co., Chicago.
- 145 Tons, Chicago, school for deaf, to Ceco Steel Products Co., Chicago.
- 115 Tons, Chicago, addition to Lady of Mercy Mission, to Olney J. Dean Co., Chicago.
- 105 Tons, Chicago, graduate school medical center, to Olney J. Dean Co., Chicago.
- 105 Tons, Chicago, breakwater extension to U. S. Steel Supply Co., Chicago.
- 100 Tons, Chicago, Juvenile Detention Home, to Olney J. Dean Co., Chicago.
- 100 Tons, Cicero, Ill., Goss Printing Machine Co., to Ceco Steel Products Co., Chicago.

ISU Defeats CIO at Weirton

Steubenville, Ohio—The Independent Steelworkers Union this week defeated by a vote of 7291 to 3454 the CIO United Steelworkers in a National Labor Relations Board collective bargaining election at Weirton Steel Co. William Huff, ISU temporary chairman, has announced the union will proceed immediately to write a contract.

Vacuum Cleaner Sales at Peak

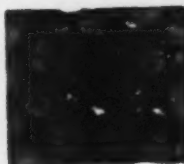
Chicago—Factory sales of standard size household vacuum cleaners during the first 9 months of this year surpassed the total sold during the same period in 1949, according to C. G. Frantz, secretary-treasurer of the Vacuum Cleaner Mfrs. Assn. Sales during the first 9 months amounted to 2,643,901 units compared with 2,094,965, during the same period last year.

Quieter Machinery Forecast

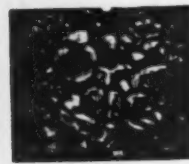
Chicago—Quieter machines will result from use of noise circuit decoupling techniques, according to Dr. Howard C. Hardy, supervisor of acoustics and vibration at Armour Research Foundation, Illinois Institute of Technology. By establishing noise circuits similar to electrical circuits, the acoustical engineer may trace the source of radiated sound and reduce the sound by "decoupling" the circuit.

Here's Why
TRU-STEEL SHOT
Costs Less to Use

LIFE COMPARISON
TRU-STEEL vs. CHILLED IRON SHOT
Magnified 10X



TRU-STEEL
After 1500 Passes



CHILLED IRON
After 50 Passes

Users Find TRU-STEEL Has 5 Important Advantages

- LASTS MANY TIMES LONGER—LESS SHOT IS USED

Gray Forgings and Stamping, Ltd.:
"We find Tru-Steel Shot lasts from 5 to 6 times as long as ordinary shot."

- REDUCES CLEANING COSTS PER TON

A Detroit Manufacturer: "Just figuring the savings in abrasive and parts alone, we showed a savings of 30% in the cost per ton of parts cleaned compared to our previous costs with chilled iron shot."

- SAVES STORAGE AND TRANSPORTATION COSTS

A Prominent User: "In general Tru-Steel costs half as much as ordinary shot, cuts down on maintenance and costly parts with less handling and storage."

- INCREASES LIFE OF MACHINE PARTS

A Midwest Manufacturer: "Another big advantage we find is the longer life of the machine itself. We saved 63% in the cost of replacement parts, not counting the time saved by our maintenance men in not having to replace parts often."

- REDUCES MACHINE MAINTENANCE COSTS

A steel foundry reports the use of Tru-Steel Shot resulted in a savings of 73% on wearables, 63% on abrasive consumption, and 80% on maintenance labor.

Write for Bulletin No. 59

DISTRIBUTED BY

American

WHEELABRATOR & EQUIPMENT CORP.

510 S. Byrkit Street, Mishawaka 3, Indiana

Mfd. by: Steel Shot Producers, Inc.



cat nap's unaffected... his plant's protected

Here's real peace of mind! He knows that fire from a short circuit, a stray spark, a forgotten cigarette or spontaneous combustion can't destroy his investment in materials, equipment and buildings. His plant is protected with modern, approved C-O-TWO Fire Protection Equipment.

For instance, with a C-O-TWO Combination Smoke Detecting and Fire Extinguishing System you have a 24 hour a day automatic fire watchman. The first whiff of smoke in a protected area sounds an alarm. Then fast, clean, non-damaging, non-conducting carbon dioxide blankets the fire, putting it out in seconds, before it spreads and causes extensive damage . . . no lingering odors, no water damage with carbon dioxide.

There are areas in your plant that particularly need C-O-TWO fast, positive fire protection: record vaults, store rooms, spray booths, dip tanks, solvent baths, electrical equipment enclosures, lift trucks, pump rooms, especially anywhere there's danger of flammable liquid or electrical fires. The longer you wait to adequately protect these fire hazardous areas, the greater are the chances of a costly fire cutting into your profits.

Whatever your fire protection problem, let an expert C-O-TWO Fire Protection Engineer help you in planning complete and up-to-date fire protection facilities now. Write us today . . . tell us about your particular fire hazards, our experience is at your disposal . . . no obligation of course.



C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK 1 • NEW JERSEY

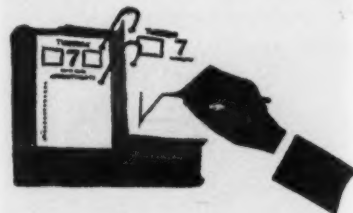
Sales and Service in the Principal Cities of United States and Canada

Affiliated with Pyrene Manufacturing Company

MANUFACTURERS OF APPROVED FIRE PROTECTION EQUIPMENT

Squeeze-Grip Carbon Dioxide Type Fire Extinguishers • Dry Chemical Type Fire Extinguishers
Built-In High Pressure and Low Pressure Carbon Dioxide Type Fire Extinguishing Systems
Built-In Smoke and Heat Fire Detecting Systems

Dates to Remember



Nov. 2-3—Industrial Management Society, Research Div., annual time, motion and management clinic, Sheraton Hotel, Chicago. Society headquarters are at 35 E. Wacker Drive, Chicago.

Nov. 2-3—Society of Automotive Engineers, diesel engine meeting, Hotel Knickerbocker, Chicago. Society headquarters are at 29 W. 39th St., New York.

Nov. 9-10—Society of Automotive Engineers, fuels and lubricants meeting, Mayo Hotel, Tulsa, Okla. Society headquarters are at 29 W. 39th St., New York.

Nov. 14-16—American Institute of Electrical Engineers, technical conference on electrical engineering in the machine tool industry, Sheraton Hotel, Worcester. Institute headquarters are at 33 W. 39th St., New York.

Nov. 26-Dec. 1—American Society of Mechanical Engineers, annual meeting, Hotel Statler, New York. Society headquarters are at 29 W. 39th St., New York.

Nov. 27-Dec. 2—American Society of Mechanical Engineers, national power show, Grand Central Palace, New York. Society headquarters are at 29 W. 39th St., New York.

Dec. 3-6—American Institute of Chemical Engineers, annual meeting, Neil House, Columbus, Ohio. Institute headquarters are at 120 E. 41st St., New York.

Dec. 7-9—American Institute of Mining & Metallurgical Engineers, Electric Furnace Steel Committee, annual conference, Hotel William Penn, Pittsburgh. Institute headquarters are at 29 W. 39th St., New York.

To Hold Chemistry Conference

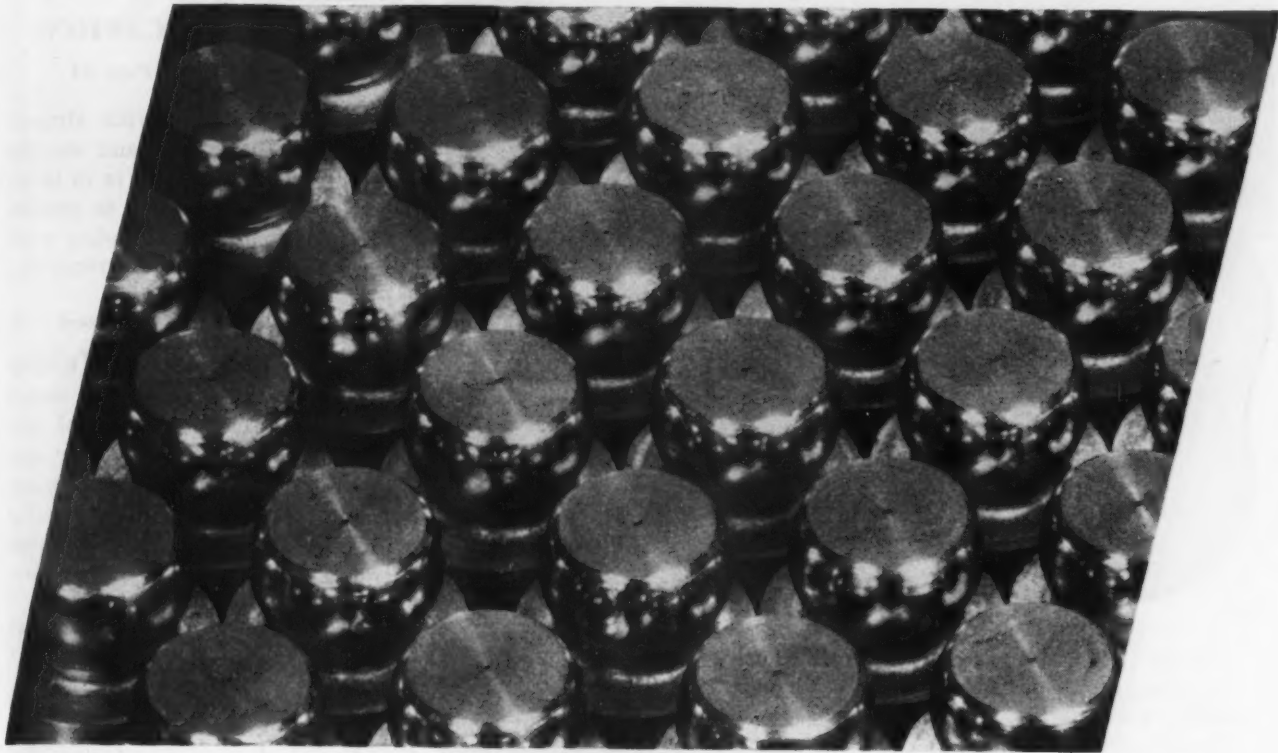
Pittsburgh—The 1951 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy will be held at the William Penn Hotel here from Feb. 28 to Mar. 2. Featuring an exposition of modern laboratory equipment, the conference will be sponsored jointly by the analytical chemistry group of the Pittsburgh section of the American Chemical Society and the Spectroscopy Society of Pittsburgh.

Engineers Plan Dec. 12 Meeting

Detroit—A mobilization meeting open to member and non-member engineering companies will be held here Dec. 12 under sponsorship of the National Assn. of Engineering Companies. Advisory committees will be organized to cooperate with government agencies in carrying out the Defense Production Act.

THERE'S MORE TO THIS PICTURE

than first meets the eye. You'll find the entire illustration from which this enlargement was made on Page 160.



"Close-ups"

... show you what goes on at Allied. Plant photographs, illustrating a wealth of modern equipment in four large factories, could only tell a small part of the story. You have to get close to many individual operations—in production, engineering or even clerical departments—to see the true picture of Allied's careful attention to even relatively unimportant details... all of which add up to good products and good service.

At Allied every phase of every job is *important*.

ALLIED PRODUCTS CORPORATION

DEPARTMENT 55

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HARDENED AND PRECISION GROUND PARTS • STANDARD CAP SCREWS • SPECIAL COLD FORGED PARTS • SHEET METAL DIES FROM THE LARGEST TO THE SMALLEST • ALLITE ZINC ALLOY DIES • JIGS • FIXTURES • R-B INTERCHANGEABLE PUNCHES AND DIES



Just by telling us that you have roll wheel grinding problems, you can get job-side help quick from an Electro Technically Trained Field Engineer.

He will bring you the benefit of our long experience with wheels for grinding hot mill rolls of Hardened, Steel, Cast Iron and Chilled Iron.

Whether your problem is this exacting, difficult and ticklish operation in cylindrical grinding, or something else, write, wire or phone us to send a Field Engineer or a copy of our Electro Grinding Wheel Manual 645. No obligation in either case, but it will give us an opportunity to be helpful to you; and to tell you why Electro High-Speed Grinding Wheels are engineered to specific jobs. Wheel performance on trial orders is the big reason for our steady, sizeable growth.

Electro Refractories & Alloys Corp.
344 Delaware Ave., Buffalo 2, N. Y.
West Coast Warehouse, Los Angeles
Canadian Electric Furnace Plant, P. Q.



FREE

PUBLICATIONS

Continued from Page 34

other section deals with aircraft bearings. List prices and weights are given. The catalog is in loose-leaf ring binding form to provide for replacement sheets when revisions occur. *Federal Bearings Co., Inc.*

For free copy insert No. 8 on postcard, p. 35.

Welded Mechanical Tubing

What to expect when you design and build welded mechanical tubing; applications; tubing for construction purposes; gages, sizes, diameters and tolerances of tubing are described in a new 8-p. illustrated catalog. *Tubing Div., Brainerd Steel Co.*

For free copy insert No. 9 on postcard, p. 35.

Economical Refractories

B & W Allmul, a firebrick with a true mullite composition, is described in a new 4-p. folder. The bulletin discusses advantages of a mullite brick, showing results of tests performed on various typical alumina-silica combinations. A table showing average properties and the wide range of applications is included. *Babcock & Wilcox Co., Refractories Div.*

For free copy insert No. 10 on postcard, p. 35.

Electric Hoists

A number of advantages possible with P & H Zip-Lift electric hoists are detailed in a new 20-p. booklet. Cutaway views show interior construction, while charts and other drawings show clearance data and condensed specifications. Numerous photos illustrate typical applications providing greater ease and economy in materials handling. *Harnischfeger Corp.*

For free copy insert No. 11 on postcard, p. 35.

File Facts

A new 48-p. booklet entitled "File Philosophy" is a brief account of the history, manufacture, variety and uses of files in general, and tells how to get the most out of files. This second printing of the seventeenth edition will serve as a practical guide in the art of filing. In

MicroRold[®] 430

polished sheets now available



During the current critical nickel shortage, the same close tolerance and uniformity of gauge that have made MicroRold 18-8 so outstanding are now being incorporated in MicroRold 430.

It is important that the individual end use be discussed with your distributor or with our metallurgical department.

MicroRold 430 has moderate ductility, good forming and bending characteristics, and can be drawn to a moderate degree. It can be brazed and

soldered with the same facility as chrome-nickel grades and except where resistance to high stresses is a major factor, it welds satisfactorily by the usual methods.

MicroRold 430 is used extensively for interior architectural trim, bar, restaurant and soda fountain components, table tops, etc. Washington Steel Corp. is currently producing polished sheets in standard sizes, 20 gauge and lighter, to replace chrome-nickel material vitally needed for the national defense program.

WASHINGTON STEEL CORPORATION

Washington, Pennsylvania



November 2, 1950

121

Ingersoll

your better source for all three

STEEL that
resists
corrosion

INGERSOLL
SOLID STAINLESS

STEEL that
resists
heat

INGERSOLL
HEAT-RESISTANT

STEEL that gives
stainless
protection
at lower cost

INGERSOLL
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STAINLESS-CLAD

All are backed by Borg-Warner

Your inquiries are invited

Ingersoll STEEL DIVISION
BORG-WARNER CORPORATION

310 South Michigan Avenue • Chicago 4, Illinois
Plants: Chicago, Illinois, New Castle, Indiana, and Kalamazoo, Michigan



FREE PUBLICATIONS

Continued

addition to retaining the fundamental discourses on general file design, application and care, this latest printing contains considerable information on special purpose files, to assist in selecting the right file for the job. *Nicholson File Co.* For free copy insert No. 12 on postcard, p. 35.

Eliminates Pickling

"How Wheelabrator Blast Cleaning Solves Acid Pickling Problems" is the name of a new 4-p. bulletin. The story of how this airless blasting process has influenced cleaning speeds, costs, safety and other factors, and eliminates acid disposal in various applications is told in case study form. *American Wheelabrator & Equipment Corp.*

For free copy insert No. 13 on postcard, p. 35.

Hoists and Cranes

An 8-p. illustrated booklet shows and describes various types of Northern Hi-Lift hoists and hoist cranes. Close-up and sub-assembly views show details of design and construction. Tabulated dimension data for different capacities and spans for hoist cranes and end trucks are included, with typical installation views. *Northern Engineering Works.*

For free copy insert No. 14 on postcard, p. 35.

Exhauster Fans

Complete single inlet performance tables for the Robinson type AE exhauster fan are presented in a new 18-p. bulletin showing standard and special construction and arrangements available. Drawings show dimensions and general arrangement of the units, and some applications for which these exhausters are particularly well adapted are described. *Robinson Ventilating Co.*

For free copy insert No. 15 on postcard, p. 35.

Shaper Setups

"Setups on Cincinnati Shapers" is the title of a 16-p. booklet offering helpful information on the use of these machines. Fundamentals in setup, tool selection, and correct setup techniques are illustrated and explained. *Cincinnati Shaper Co.*

For free copy insert No. 16 on postcard, p. 35.

Resume Your Reading on Page 35

FOR DIFFICULT BOLTING JOBS

USE "SPECIALS"

Somewhere in your manufacturing operations there may be a need for a fastener where the use of a standard bolt is unfeasible, or uneconomical. In such a case, it will pay you to use a "special"—a fastener specially designed for the job.

Bethlehem's huge fastener plant at Lebanon, Pa., specializes in the design and manufacture of "specials." Our fastener engineers have had long experience in handling unusual fastener problems, and are often able to come up with solutions which provide a definite dollars-and-cents saving for the user.

In addition to specials, Lebanon Plant turns out a complete range of standard items, such as machine and carriage bolts, lag bolts and rivets.

If you have a fastener problem, or if you are now using a standard fastener where you think a special might do the job better, let us go to work on the problem. Get in touch with our nearest sales office, or drop a line to us at Bethlehem, Pa.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by
Bethlehem Pacific Coast Steel Corporation.
Export Distributor: Bethlehem Steel Export Corp.



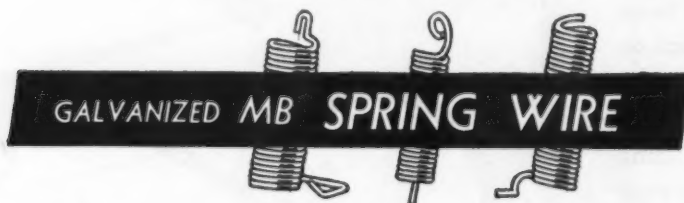
Bethlehem supplies every type of Fastener.



Specialized Wire for Specialized Products



This new wire developed by Keystone helps recessed head screw manufacturers to lower production costs. It delivers the desired forming and upsetting qualities uniformly. Because of excellent flow properties — die and plug life are often more than doubled — production records show fewer rejections and reduced inspection time. Keystone Cold Heading Wire is "special processed" for tough Cold Heading jobs.



Keystone's process of drawing after galvanizing smooths and hardens the zinc coating, increasing its lasting qualities and its physical properties. This shiny smooth finish, corrosion resistant Spring Wire is now available in Type 2 and Type 3 heavy weight zinc coating as well as the regular weight suitable for most applications.

If your product requires "special" steel wire, please consult us.



NEW

PRODUCTION IDEAS

Continued from Page 38

heat with extra air volume speeds up preheat time, provides for better penetration of products in the work chamber and reduces time for heat

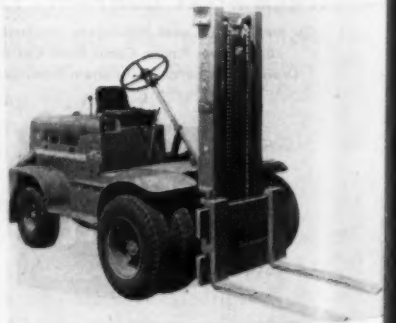


recovery after new loads. The size and shape of the new CF line fit readily into the space facilities of the average laboratory. Swinging doors permit location where less head room is available. Sizes range from 13 x 13 x 13 ft to 37 x 25 x 37 ft in the work chamber. Direct gas fired or electric models are available. *Despatch Oven Co.* For more data insert No. 30 on postcard, p. 35.

Dynatork Drive

Available on Clark Yardlift-60.

The Dynatork Drive transmits engine power to the drive axle by magnetic induction, across an air



gap. The conventional clutch is eliminated, and the standard transmission is replaced by forward-and-reverse constant-mesh gearing. The

signs of

**CMP
THINSTEEL**

warehouse service

These three steel warehouses normally carry in stock the complete range of cold rolled strip steel specialties made by The Cold Metal Products Company, including low carbon and high carbon analyses, tempered spring steel and stainless grades in the 300 and 400 series. Supply problems are now very difficult. Currently, shortages exist in some grades and sizes, but within the limits of inventory possibilities strip steel fabricators continue to find justification for the descriptive phrase long identifying all Precision produced CMP products—"More feet per pound—more finished parts per ton."

**Kenilworth
Steel Co.**

IN THE EAST IT'S

THE KENILWORTH STEEL CO.

Located in the metropolitan New York area for quick service throughout the east. 750 Boulevard, Kenilworth, N. J. Phones: New York—COrtlandt 7-2427; New Jersey —UNionville 2-6900.

**PRECISION STEEL
WAREHOUSE, INC.**

IN THE MIDWEST IT'S

PRECISION STEEL WAREHOUSE, INC.

Well known in the Chicago district for good service and careful attention to customers' requirements. 4409-4425 West Kinzie Street, Chicago 24, Illinois. Phone: COLUMBUS 1-2700.

**the Cold Metal Products co.
of California**
6600 MCKINLEY AVENUE • LOS ANGELES

IN THE FAR WEST AND PACIFIC COAST IT'S THE COLD METAL PRODUCTS CO. OF CALIFORNIA

On the west coast the only specialists in light gauge precision cold rolled strip. 6600 McKinley Avenue, Los Angeles, California. Phone: PLeasant 3-1291.



the Cold Metal Products co.
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Get Cost-Cutting Results from BESLY TAPS

engineered to your job!

UNSURPASSED ACCURACY at all vital points



Microcentric CHAMFER

Micro finish, concentric to tenths of thousands. Cuts freely and to size without burring or welding.



Solid Ground THREAD FORM

For angle and lead accuracy, eliminates gauging problems and control of pitch diameter to tenths of thousandths.



"Right" ROCKWELL

Taps pre-inspected for correct Rockwell hardness.



Mirror Finish FLUTES

Correct design to provide free chip flow and longer tap life



Tru-Square DRIVER

Square and shank fit correctly in chucks and holders. No wobble to cause oversize holes.

• RESULTS

52 PIECES PER HOUR

At one pass, instead of 3, Besly Acme form Taps thread 52 large, cold-rolled steel pieces per hour for a leading manufacturer. By correct design the two roughers were eliminated. Tap used is 1½", 4 Acme thread, which saves production time, reduces tool costs, yet meets every requirement for close tolerances.

• RESULTS

THREADS 89 HOLES IN SINGLE OPERATION

The manufacturer of a world famous tractor selected Besly high-speed taps for use on automatic machines that thread 89 holes in one multiple operation. Where set-up time is critical, rely on Besly.

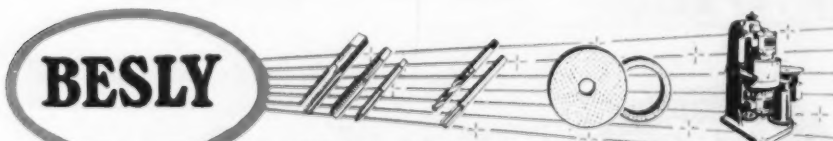
• RESULTS

FAST DELIVERY

is a specialty with Besly. You can get:—Over-night shipment on stock taps; fastest service on "specials" that can be made from hardened blanks; 3-week shipment on "specials" made from bar stock.

• No matter what the material, Engineered Results, like those shown here, can be yours when you use Besly Taps. Development of the right tap for specific tapping operations has been a principal reason for the ever-widening acceptance of Besly

Taps. Ask for a Besly Test on your tapping job. Prove in your shop what you'll earn in time, material, and tool cost savings, plus the peace of mind that comes with keeping even the tough tapping jobs under control.



CHARLES H. BESLY & COMPANY

122 N. CLINTON STREET, CHICAGO 6, ILLINOIS
Factory: Beloit, Wisconsin

NEW PRODUCTION IDEAS

Continued

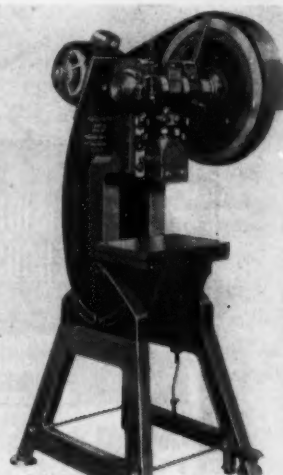
directional forward, reverse and neutral control switch is manipulated by a finger-tip lever mounted on the steering column. For maximum safety, a dead-man control is operated by the driver's seat. When the driver leaves his seat the directional control lever automatically returns to and locks in neutral until the seat is occupied again. *Clark Equipment Co.*

For more data insert No. 31 on postcard, p. 35.

Open-Back Press

Positive single stroke press has a Press-Rite sliding key clutch.

The new Press-Rite No. 1½ 15-ton open back inclinable press has a sliding key clutch with a four point engagement ring and a roller bearing mounted flywheel. Diameter of the crankshaft at the bearing



is 2½ in. and at the pin 2¾ in. V ways on its ram have triple lubrication. Standard stroke is 2 in. The flywheel is 20¼ in. diam. weighs 190 lb and reaches a speed of 160 rpm with a ¾ hp, 1140 rpm motor. The press weighs 1100 lb. *Sales Service Machine Tool Co.*

For more data insert No. 32 on postcard, p. 35.

Automatic Countersink

Tool supplies its own thrusting action, has self-locking grip.

A portable, air-powered countersinking tool with a self-locking grip that holds the tool firmly to the work sheet while operating, requires no manual effort other than inserting the mandrel in the hole to be countersunk. Expansion of

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p. 35.

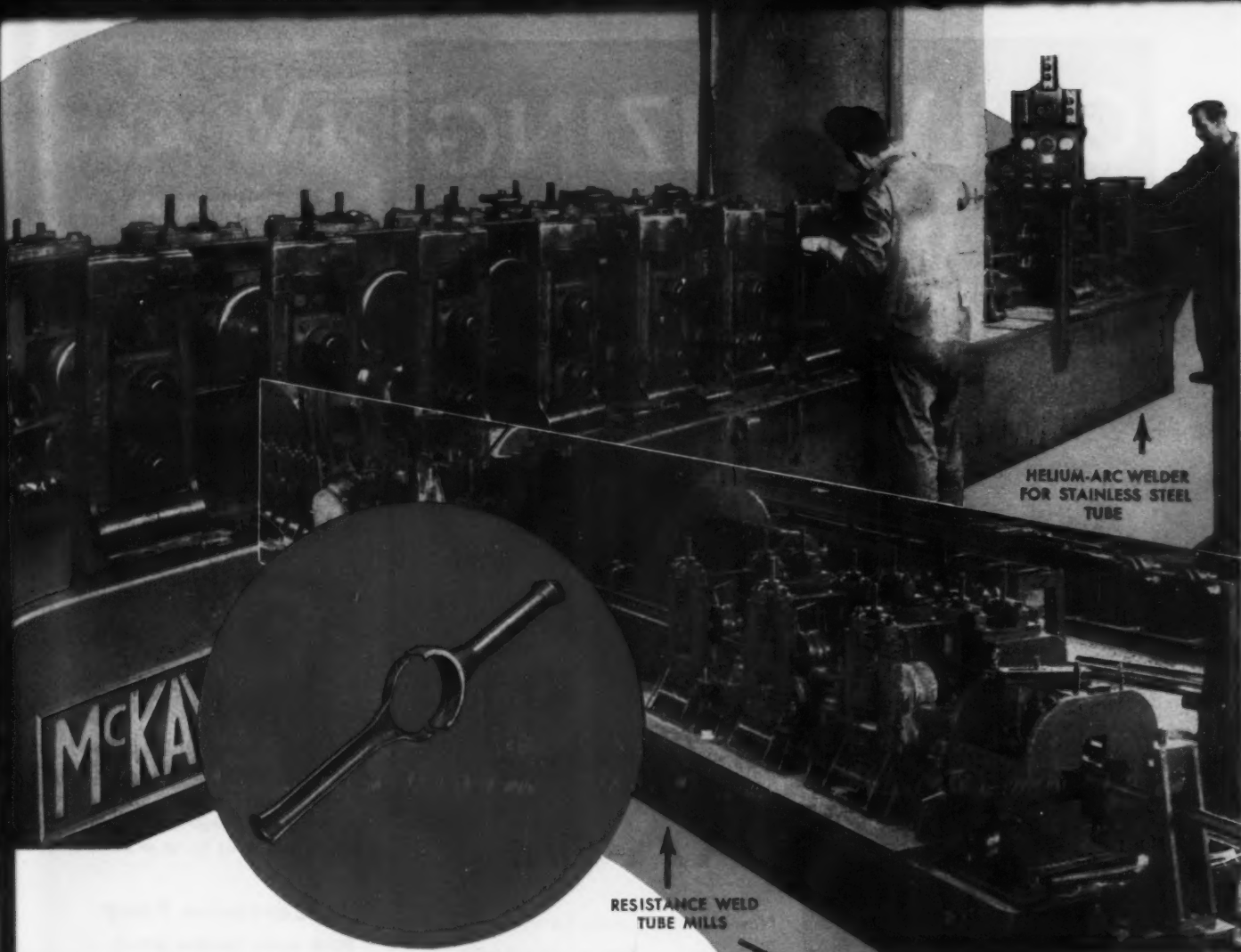
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ON AGE



↑
HELIUM-ARC WELDER
FOR STAINLESS STEEL
TUBE

↑
RESISTANCE WELD
TUBE MILLS

McKAY TUBE MILLS MEAN *More Yield—Lower Maintenance* TO LEADING TUBE MAKER

For tough, exacting tube jobs that must be run at high production speeds Standard Tube Co., Detroit, one of the nation's leading producers of city tubing, relies on sturdily built, dependable McKay Tube Mills.

An example of the type of work performed on the McKay Mills by Standard is the rear axle housing pictured above. This piece must be perfect, and must be produced at speeds to conform with automotive production. Standard has found it can depend on McKay to give it the city tube it needs.

Too, Standard likes the way the McKay Mills run around-the-clock day after day with so little attention. Expensive "down time" is held to an absolute minimum.

This Standard story of high yield and low maintenance is repeated wherever there is a McKay in operation. If you are producing welded steel tubing it will more than pay you to work with McKay—the name that truly means the Machine for Your Money."

MORE MACHINE



McKAY MACHINE COMPANY

Youngstown, Ohio

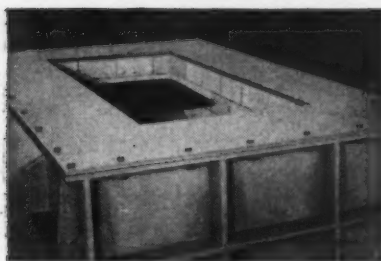
FOR YOUR MONEY

GALVANIZING by induction *



Seven ton capacity
Ajax Low Frequency
Induction Furnace
now in use for Hot
Dip Galvanizing.

another **AJAX** First



Showing the heavy
refractory brick lin-
ing walls contain-
ing the molten zinc.
No iron kettle is
used.

Now Ajax engineers have developed a galvanizing furnace lined with an inert refractory material. The melt is internally heated by the electric induction principle introduced by Ajax more than thirty years ago. Costly iron kettle replacements and dross formation from iron kettle are eliminated. Internal circulation assures complete uniformity of temperature.

**FASTER PRODUCTION • UNIFORM QUALITY
LESS MAINTENANCE • LOW OPERATING COST
ABSOLUTE TEMPERATURE CONTROL • LONG
LIFE • REDUCED DROSSING • NO HOT SPOTS
SMALLER ZINC BATH POSSIBLE**

AJAX
TAMA-WYATT



AJAX ENGINEERING CORPORATION
TRENTON 7, N. J.

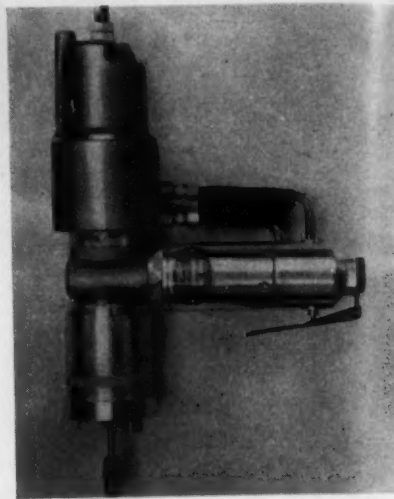
INDUCTION MELTING FURNACE

Associate Companies: AJAX METAL COMPANY, Non-Ferrous Ingot Metals and Alloys for Foundry Use
AJAX ELECTROTHERMIC CORP., Ajax-Hartford High Frequency Induction Furnaces
AJAX ELECTRIC CO., INC., The Ajax-Holbrook Electric Salt Bath Furnace
AJAX ELECTRIC FURNACE CORP., Ajax-Wyatt Induction Furnaces for Melting

NEW PRODUCTION IDEAS

Continued

the mandrel locks the tool in operating position. Drilling speed and depth of cut are pre-determined and automatically controlled. The

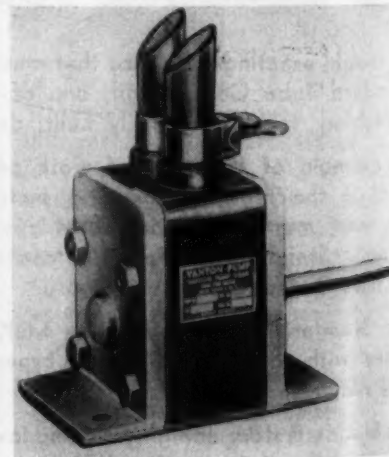


new tool countersinks holes $\frac{3}{8}$ in. diam and larger and is available in capacities of $\frac{3}{4}$ to $1\frac{1}{8}$ in. across the mouth. *Buckeye Tools Corp.*
For more data insert No. 33 on postcard, p. 35.

Non-Corrosive Pump

**Fluid never touches metal;
features no stuffing boxes.**

A new flex-i-liner pump uses a specially formulated rubber liner that withstands the corrosive action of hydrochloric acid. Containing no stuffing boxes, no gaskets,



no valves, the pump construction is such that the fluid flows on the outside of the flex-i-liner and on the inside of the body block. An eccentric rotor mounted on a ball

Turn to Page 132

NEW VICKERS magneclutch*

offers exclusive clutch features

for

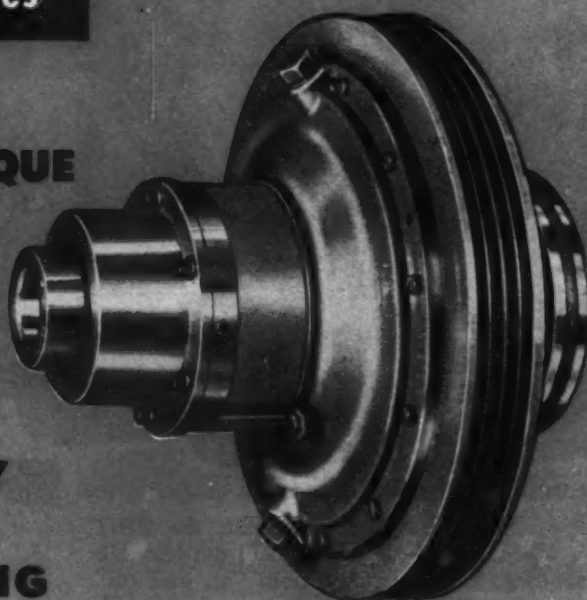
ON-OFF, OR TORQUE

SLIP SERVICE

BRAKING

REVERSING DUTY

TORQUE-LIMITING



Illustrated is a Magneclutch designed for high power slip service.

The **FIRST** commercially-usable power clutch that features a dry magnetic torque medium, the Vickers MAGNECLUTCH offers *seven* important advantages for control of torque . . . speed . . . position.

Virtually no wear on torque transmitting surfaces

Large maximum to minimum torque ratio

Torque at zero slip

Fast response

Small control power

Electrically controlled

Easily adaptable to new or existing equipment

WRITE FOR COMPLETE FACTS

They're available in our new Bulletin 6000. Please make request on your letterhead.

*Trade-Mark of Vickers Inc. for magnetic-particle type clutches.

See our exhibit in Booth 417 at the 19th National Exposition of Power and Mechanical Engineering—Grand Central Palace, New York, Nov. 27-Dec. 2.

VICKERS ELECTRIC DIVISION

VICKERS Inc.

1829 LOCUST STREET

ST. LOUIS 3, MISSOURI



November 2, 1950

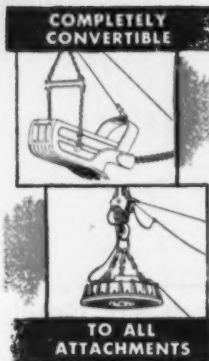
131

UNIVERSITY OF MICHIGAN LIBRARIES



Built by modern precision methods, the UNIT 1520 leads the field in quality, and dependable performance. Designed for both "on and off" highway operation. So compact, it works efficiently even in small, cramped quarters, "in or out" of the yard.

- Rugged Construction
- Perfectly Balanced
- Hook Roller Construction
- Operated by ONE Man
- Powered by ONE Engine
- Hydraulic Steering
- Air Brakes and 4 Speed Air-Actuated Transmission
- Heavy Duty, yet operated with remarkable SPEED . . . SAFETY . . . ECONOMY!



UNIT 1520 can be equipped with retractable high A-Frame to permit capacity loads on extended boom at long radius.



UNIT CRANE & SHOVEL CORPORATION
6517 W. BURNHAM STREET • MILWAUKEE 14, WISCONSIN, U. S. A.



SHOVELS • DRAGLINES • CLAMSHELLS
CRANES • TRENCHERS • MAGNETS

NEW PRODUCTION IDEAS

Continued

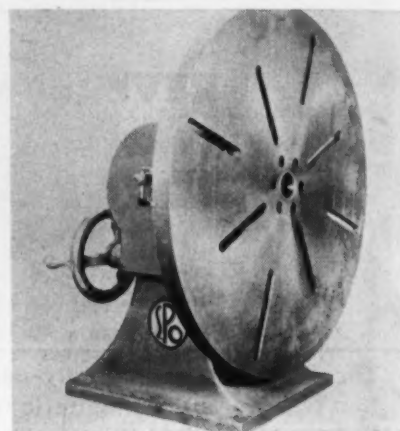
bearing rides inside and activates the flex-i-liner. The "squeegee" action thus created is the basis of the pump operation. *Vanton Pump Corp.*

For more data insert No. 34 on postcard, p. 35.

Layout Protractor Table

Features 360° radial positioning within a 90° vertical arc.

A new series No. 30 layout protractor table designed for use with patterns, coreboxes, castings, etc., facilitates checking or layout without disturbing the original setup. Incorporating a 30-in. diam rotary table, the unit utilizes an indicator and vernier on an adjustable arm to permit direct readings, accurate



to within 10 min. This indicator assembly can be set to operate on either side of the table or at any intermediate position. The circumference of the work table is graduated from 0 to 360° in 1/2° markings. The table can be set and positively locked in any position within a 90° arc. Tapered roller, needle, and thrust bearings on the spindle, trunnion, and worm shaft, respectively, assure maximum ease of operation and rapid positioning. *Spo. Inc.*

For more data insert No. 35 on postcard, p. 35.

Coil Rack

Extra heavy duty units up to 10,000 lb capacity for stacking.

The racks are tubular all-welded steel construction, with two heavy square tubes welded together for the extra load capacity. Nesting caps, welded into the tubular corner posts make for safe and con-

Always know what you're getting

when you buy plating and polishing equipment & supplies

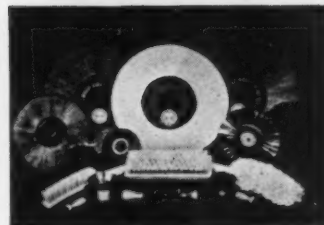


Be sure you are getting the benefit of laboratory composition research. The H-VW-M laboratory is constantly engaged in research to improve the cutting and coloring properties of all types of buffing compositions. 6-B-97, an exceptional stainless steel cutting

rouge, is the latest result of this program. It yields an exceptional degree of color along with deep cut found only in the use of coarser abrasives.

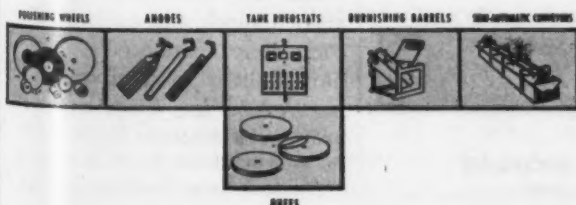
Oil-water emulsion liquid tripoli compositions are also available for spray gun application on automatic buffing machines. Deepest cut is obtained with 2-L-178, while the best color is left by 2-L-177. The latter is in the double-duty cut-color classification. Both are tripolis for use on virtually all non-ferrous metals. H-VW-M welcomes research opportunities on specific buffing problems.

Be sure the brushes you buy are right for trouble-free service. H-VW-M recommends StapLBond Tampico brushes for use with emery paste or other compositions for polishing irregular steel surfaces; with pumice or special compositions for satin finishes; for cleaning all metals. H-VW-M StapLBond Steel Wire Brushes are recommended for heavy brushing on rubber, castings, gear teeth and for removing scale, rust, etc., from metal surfaces. Brass wire brushes are used for brushed or satin finish on brass or copper. Stainless wire brushes prevent rusting and nickel-silver is used on non-ferrous metals other than brass or copper. The complete line of H-VW-M quality brushes in a full range of materials is described in Bulletin BR-104.



Be sure your plating conveyors are always ready for heavy duty. H-VW-M Full-Automatic Conveyors always are. Motors have variable speed drives; rugged carriers have self-lubricating fingers for heavy current loads; electrical circuits provide for inside auxiliary anodes; periodic reverse type plating is provided for as well as motion plating for uniform deposits of required thickness. Result? A marked reduction in rejects, lowered costs, a better product. H-VW-M is the most experienced builder of automatic plating machines in the world. Why not consult our engineers or write for Bulletin No. FA-103?

vided for as well as motion plating for uniform deposits of required thickness. Result? A marked reduction in rejects, lowered costs, a better product. H-VW-M is the most experienced builder of automatic plating machines in the world. Why not consult our engineers or write for Bulletin No. FA-103?



Yes, be sure you know what you're getting . . . and be assured you can always get what you want from H-VW-M when you want it . . . H-VW-M products are strategically warehoused for prompt service and delivery . . . H-VW-M sales-engineers and laboratory technicians are always available for help in your production problems. It is this overall service and experience that have made H-VW-M the central source of supply . . . for over 80 years . . . for all the needs of the electroplating and polishing industry.

HANSON-VAN WINKLE-MUNNING COMPANY, Matawan, N. J.
Plants at: Matawan, N. J. • Anderson, Indiana • Sales Offices: Anderson
Chicago • Cleveland • Dayton • Detroit • Grand Rapids • Matawan
Milwaukee • New Haven • New York • Philadelphia • Pittsburgh
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Manufacturers of a complete line of electroplating and polishing equipment and supplies

The **ABC** **MST**

Michigan

The Modern Electric Resistance

WELDED STEEL TUBING



A ALWAYS
MAKES
POSSIBLE
B BETTER
PRODUCTS
C AT LOWER
COST

A
Quality
Product



ROUND

1/8" to 4" O.D. 9 to 22 gauge

SQUARE-RECTANGULAR

1/2" to 2" 20 gauge 1" to 2 3/4", 14, 16, 18 gauge

Can be Bent, FLANGED, EXPANDED, TAPERED, DEPRESS BEADED,
ROLLED, EXTERNAL UPSET, INTERNAL UPSET, SPUN CLOSED, FORGED,
BEVEL FLANGED, FLATTENED, SWAGED, FLUTED, EXPAND BEADED



Consult us for engineering and
technical help in the selection of
tubing best suited to your needs.

Simplification of design and
ease of fabrication and installa-
tion are only two of many
reasons why thousands of
manufacturers specify MICHIGAN
TUBING. No matter what
the product—bicycles, tools,
elevators, lawn mowers—
MICHIGAN TUBING is an eco-
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Michigan

STEEL TUBE PRODUCTS CO.

33 Years in the Business

9450 BUFFALO STREET • DETROIT 12, MICHIGAN

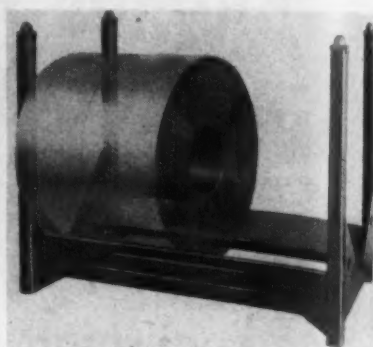
FACTORIES: DETROIT, MICHIGAN • SHELBY, OHIO

DISTRIBUTORS: Steel Sales Corp., Detroit, Chicago, St. Louis, Milwaukee, Indianapolis
and Minneapolis—Miller Steel Co., Inc., Hillside, N. J.—C. L. Hyland, Dayton, Ohio—
Dirks & Company, Portland, Oregon—James J. Shannon, Milton, Mass.—Service Steel
Co., Los Angeles, Calif.—American Tubular & Steel Products Co., Pittsburgh, Pa.—
Strong, Carlisle & Hammond Co., Cleveland, Ohio—A. J. Fitzgibbons Co., Buffalo, N. Y.

NEW PRODUCTION IDEAS

Continued

venient storage in multiple tiers.
Weight of the upper tiers is car-
ried by the corner posts in the



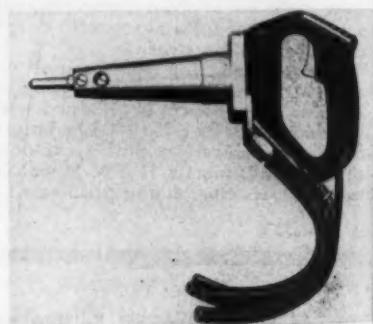
lower tiers, with no stress on ma-
terials stored in the racks. Ameri-
can Metal Products Co.

For more data insert No. 36 on postcard, p. 31.

Rivet Gun

Uses Du Pont explosive rivets for
high speed blind riveting operations.

A lightweight rivet gun elimi-
nates the need for back-up; re-
quires no hammer or bucking bar.



Only a single touch of the gun and
rivet is set. The tips are nichrome
steel welded to a bronze base. Rip-
ley Co., Inc.

For more data insert No. 37 on postcard, p. 31.

Anode Baskets

Have welded steel cores; are
coated with semi-hard rubber.

For utilizing scrap in plating op-
erations the baskets suspend from
the anode rail and new anodes are
suspended inside the basket with
the scrap packed tightly around
them. The baskets are designed to
absorb shock and cutting. Each is
completely insulated with semi-
hard rubber to a minimum thick-
ness of 1/8 in. Sizes are made to
order. Automotive Rubber Co., Inc.

For more data insert No. 38 on postcard, p. 31.

Resume Your Reading on Page 39

MARKET

IRON AGE
FOUNDED 1855
MARKETS & PRICES

Briefs and Bulletins

galvanized pipe—An average rise of \$3.80 to \$4 for galvanized pipe, due to the increased cost of zinc, has been announced by Republic Steel, Bethlehem Steel and Youngstown Sheet & Tube. Kaiser Steel Corp. has announced changes in discounts for galvanized pipe effective Oct. 26. Base discounts for Standard T & C steel butt weld pipe, 1/2 to 3 in., now stands at 7 1/2 to 17 1/2 pts. U. S. Steel Export Co. has announced increases on galvanized items including pipe, plain wire, nails, staples, barbed wire. Discount changes on both standard and extra strong galvanized pipe have been announced by Fretz-Moon Tube Co., Inc.

ore to Canada—The Steel Co. of Canada Ltd., Hamilton, Ontario, is importing some 20,000 tons of iron ore from Brazil for testing purposes. Already four shiploads, with a total of 8000 tons have arrived. Officials state the company imports iron ore from various points for experimental purposes and does not depend on ore from one area alone.

hot strip extras—Weirton Steel Co. has increased extras on hot and cold-rolled strip from \$1 to \$4 per ton. Increases of \$5 per ton also were put into effect on high T strength low alloy sheets and strip, hot and cold-rolled. New Weirton high T strength low alloy prices are sheets, hot-rolled, 5.30; cold-rolled, 6.45; strip, hot-rolled, 5.50; cold-rolled, 6.45.

lead time—Some steel firms are finding that the 45-day lead time on DO orders is not enough on some products such as cold-rolled sheets and electrical sheets. Normal production cycle on these items is 60 days.

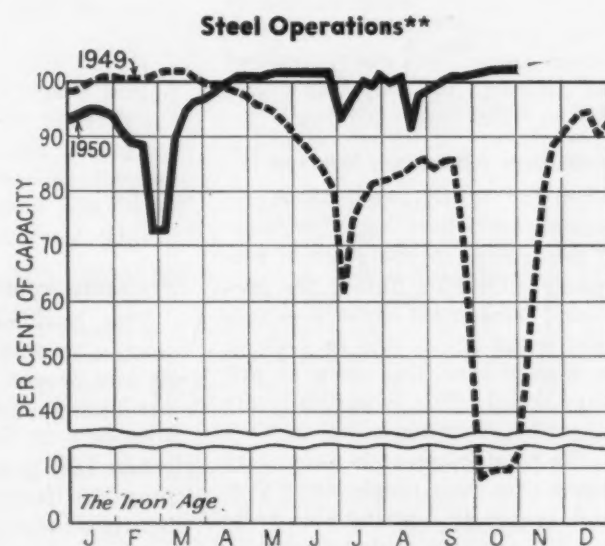
tin plate—Carnegie-Illinois Steel Corp. will establish four different base prices for tin mill products in 1951. Prices now are based on standard coating of 1.50 lb with deductions for lighter coatings. Separate bases will be set up for black plate, terne plate, .25 lb electrolytic with extras for heavier coatings and 1.25 lb common cokes with extras for standard coating. Increments on gage deductions will be increased to 15¢ from 10¢. A series of extras and deductions according to widths also will be instituted. Other producers are likely to follow with similar changes. New tinplate prices will be announced Nov. 15 for 1951.

auto record—It is better than an even bet that the auto industry will reach its 8-million-car goal this year unless material restrictions pull them down from behind. Nash is the only car maker that has definitely cut back output so far. Strategy so far is to use all available steel to the limit.

it all counts—Steel needed for landing mats will amount to 36,000 tons of hot-rolled sheets in the next 5 months. Blitz cans will require at least 15,000 tons of sheets in the next 4 months.

pig iron—Prices of pig iron at Fontana were raised \$3.00 a ton on basic and No. 2 Foundry in a recent change by Kaiser Steel Corp. The new prices are \$55 for basic and \$55.50 for foundry.

silvery iron—Jackson Iron & Steel Co., Jackson, Ohio, has raised the price of silvery iron to \$59.50, f.o.b. Jackson, effective Oct. 26, establishing a new base price for silvery iron of 6.01 to 6.50 pct silicon.



District Operating Rates—Per Cent of Capacity**

Week of	Pittsburgh	Chicago	Youngstown	Philadelphia	Cleveland	Buffalo	Wheeling	South	Detroit	West	Ohio River	St. Louis	East	Aggregate
Oct. 22	102.0*	104.0	97.0*	95.0	100.0*	104.0	101.0	106.0	106.0*	104.0	90.0	95.0	111.0	102.5
Oct. 29	101.0	104.0	94.0	96.0	98.0	104.0	102.0	106.0	103.0	102.5	95.0	98.5	78.0	102.5

* Revised.
** Steel operations for the first half of 1950 are based on annual capacity of 99,392,800 net tons. Beginning July 1, 1950, operations are based on new annual capacity of 100,963,500 net tons.

Nonferrous Metals OUTLOOK

Market Activities

New York—The scrap metals market continues to spiral higher and higher as time goes by. Dealers' buying prices are higher this week for practically all metals.

"Officially" dealers are paying 24½¢ to 25¢ per lb for No. 1 copper and reports of conversion deals continue to put the price even higher. Other copper and brass prices are up in proportion. The ingot makers and custom smelters are still offering 21¾¢ per lb for No. 1 copper but they are not getting any material.

Secondary brass ingots have not been upped this week, but there has been some talk in the trade about another increase because of the terrific boosts in scrap costs. Actually there has not been much heavy buying of scrap because of a feeling that things have just about reached the peak and the only way prices can go from here is down.

Secondary Aluminum Boosted

On the other hand, these increased costs have been the cause of two jumps in the price of secondary aluminum during the past week. Some ingot makers' aluminum scrap prices are as high as or higher than the price of primary metal. This is certainly not a healthy situation.

The total increase in secondary ingots this week ranges from 1½¢ to 2½¢ per lb, putting this price to well over half again as much as primary ingots.

Things are relatively quiet in the prices of primary metals with the outstanding exception of tin. At the beginning of October, tin sold at \$1.04, in itself a high price, and then the records started to fall. A new all-time high was re-

Scrap metal spiral gets dizzier and dizzier . . . Secondary aluminum prices jump 1½¢ to 2½¢ per lb . . . Expected NPA cutback order causes strong feeling on stockpile policy.

MONTHLY AVERAGE PRICES

The average prices of the major non-ferrous metals in October based on quotations appearing in THE IRON AGE, were as follows:

	Cents Per Pound
Electrolytic copper, Conn. Valley	24.50
Lake copper, delivered	24.625
Straits tin, New York	\$1.1335
Zinc, East St. Louis	17.50
Zinc, New York	18.22
Lead, St. Louis	15.80
Lead, New York	16.00

ported practically every day and the price is still rising. As we go to press, the price of tin for prompt delivery at New York is \$1.26, and where it will be next is strictly a matter of conjecture.

Stockpile Squabble Fanned Anew

The National Production Authority, in deciding to cut between 20 and 30 pct of the use of copper, aluminum, and nickel and eliminate all but defense uses of cobalt (see page 79), is again fanning the flame in the old dispute between industry and the govern-

ment on stockpiling. The original proposal to ban the use of these metals in certain non-essential products has been abandoned as a result of the howl put up by businessmen.

Chase Brass Makes Offer

While industry will be permitted to make as much of any one product as possible with the reduced supplies, the end result will be a cut in production and a slow burn by producers. These producers are far more than annoyed at this latest decision about the national stockpile program.

Chase Brass & Copper Co. has made a new offer to the progressive Metalworkers Council (CIO). The new offer includes a pension program, long-range cost-of-living adjustments, more vacation benefits, and a wage increase for each of the next 3 years. The offer is considered to be over 10¢ per hr. Chase also raised mill base prices and tacked another 10 pct to mill extras.

NONFERROUS METALS PRICES

	Oct. 25	Oct. 26	Oct. 27	Oct. 28	Oct. 30	Oct. 31
Copper, electro, Conn.	24.50	24.50	24.50	24.50	24.50	24.50
Copper, Lake, delivered	24.625	24.625	24.625	24.625	24.625	24.625
Tin, Straits, New York	\$1.1875	\$1.1975	\$1.21		\$1.2425	\$1.26
Zinc, East St. Louis	17.50	17.50	17.50	17.50	17.50	17.50
Lead, St. Louis	15.80	15.80	15.80	15.80	15.80	15.80

Note: Quotations are going prices.
*Tentative.

MILL PRODUCTS

Aluminum

(Base prices, cents per pound, base 30,000 lb, f.o.b. shipping point, freight allowed)

Flat Sheet: 0.188 in., 2S, 3S, 30.1¢; 4S, 61S-O, 32¢; 52S, 34.1¢; 24S-O, 24S-OAL, 32.9¢; 75S-O, 75S-OAL, 39.9¢; 0.081 in., 2S, 3S, 31.2¢; 4S, 61S-O, 33.5¢; 52S, 35.4¢; 24S-O, 24S-OAL, 31.1¢; 75S-O, 75S-OAL, 41.8¢; 0.082 in., 2S, 3S, 32.9¢; 4S, 61S-O, 37.1¢; 52S, 39.8¢; 24S-O, 24S-OAL, 41.7¢; 75S-O, 75S-OAL, 52.2¢.

Plate: 1/4 in. and heavier: 2S, 3S-F, 28.3¢; 4S-F, 30.2¢; 52S-F, 31.8¢; 61S-O, 30.8¢; 24S-O, 24S-OAL, 32.4¢; 75S-O, 75S-OAL, 35.5¢.

Extruded Solid Shapes: Shape factors 1 to 5, 36.2¢ to 74.5¢; 12 to 14, 36.9¢ to 89¢; 24 to 28, 39.6¢ to 116¢; 36 to 38, 47.2¢ to 117.0¢.

Rod, Rolled: 1.5 to 4.5 in., 2S-F, 3S-F, 37.5¢ to 38.5¢; cold-finished, 0.375 to 3 in., 2S-F, 3S-F, 49.5¢ to 35¢.

Screw Machine Stock: Rounds, 11S-TS, 1/4 to 1 1/2 in., 53.5¢ to 42¢; 1/2 to 1 1/4 in., 41.8¢ to 39¢; 1 1/2 to 3 in., 38.5¢ to 36¢; 17S-T4 lower by 1.5¢ per lb. Base 5000 lb.

Drawn Wire: Coiled, 0.061 to 0.374 in., 2S, 39.5¢ to 29¢; 52S, 48¢ to 35¢; 66S, 51¢ to 42¢; 17S-T4, 54¢ to 37.5¢; 61S-T4, 48.5¢ to 37¢; 75S-T6, 84¢ to 67.5¢.

Extruded Tubing, Rounds: 63S-TS, OD in. 1 1/4 to 2, 37¢ to 54¢; 2 to 4, 33.5¢ to 45.5¢; 4 to 6, 34¢ to 41.5¢; 6 to 9, 34.5¢ to 43.5¢.

Roofing Sheet, Flat: 0.019 in. x 28 in. per sheet, 72 in., \$1.142; 96 in., \$1.522; 120 in., \$1.902; 144 in., \$2.284. Gage 0.024 in. x 28 in., 72 in., \$1.379; 96 in., \$1.839; 120 in., \$2.299; 144 in., \$2.759. Coiled Sheet: 0.019 in. x 28 in., 35.5¢ per lb; 0.024 in. x 28 in., 28.9¢ per lb.

Magnesium

Does not reflect latest increase.

(Cents per lb, f.o.b. mill, freight allowed)

Sheet and Plate: M-O, FS-O, 1/4 in. 58¢ to 64¢; 3/16 in. 60¢ to 62¢; 1/2 in. 62¢ to 64¢; 5/8 in. 64¢ to 66¢; 3/4 in. 66¢ to 68¢; 7/8 in. 68¢ to 70¢; 1 in. 70¢ to 72¢; 1 1/4 in. 72¢ to 74¢; 1 1/2 in. 74¢ to 76¢; 1 3/4 in. 76¢ to 78¢; 2 in. 78¢ to 80¢; 2 1/2 in. 80¢ to 82¢; 3 in. 82¢ to 84¢; 3 1/2 in. 84¢ to 86¢; 4 in. 86¢ to 88¢; 4 1/2 in. 88¢ to 90¢; 5 in. 90¢ to 92¢; 5 1/2 in. 92¢ to 94¢; 6 in. 94¢ to 96¢; 6 1/2 in. 96¢ to 98¢; 7 in. 98¢ to 100¢; 7 1/2 in. 100¢ to 102¢; 8 in. 102¢ to 104¢; 8 1/2 in. 104¢ to 106¢; 9 in. 106¢ to 108¢; 9 1/2 in. 108¢ to 110¢; 10 in. 110¢ to 112¢; 10 1/2 in. 112¢ to 114¢; 11 in. 114¢ to 116¢; 11 1/2 in. 116¢ to 118¢; 12 in. 118¢ to 120¢; 12 1/2 in. 120¢ to 122¢; 13 in. 122¢ to 124¢; 13 1/2 in. 124¢ to 126¢; 14 in. 126¢ to 128¢; 14 1/2 in. 128¢ to 130¢; 15 in. 130¢ to 132¢; 15 1/2 in. 132¢ to 134¢; 16 in. 134¢ to 136¢; 16 1/2 in. 136¢ to 138¢; 17 in. 138¢ to 140¢; 17 1/2 in. 140¢ to 142¢; 18 in. 142¢ to 144¢; 18 1/2 in. 144¢ to 146¢; 19 in. 146¢ to 148¢; 19 1/2 in. 148¢ to 150¢; 20 in. 150¢ to 152¢; 20 1/2 in. 152¢ to 154¢; 21 in. 154¢ to 156¢; 21 1/2 in. 156¢ to 158¢; 22 in. 158¢ to 160¢; 22 1/2 in. 160¢ to 162¢; 23 in. 162¢ to 164¢; 23 1/2 in. 164¢ to 166¢; 24 in. 166¢ to 168¢; 24 1/2 in. 168¢ to 170¢; 25 in. 170¢ to 172¢; 25 1/2 in. 172¢ to 174¢; 26 in. 174¢ to 176¢; 26 1/2 in. 176¢ to 178¢; 27 in. 178¢ to 180¢; 27 1/2 in. 180¢ to 182¢; 28 in. 182¢ to 184¢; 28 1/2 in. 184¢ to 186¢; 29 in. 186¢ to 188¢; 29 1/2 in. 188¢ to 190¢; 30 in. 190¢ to 192¢; 30 1/2 in. 192¢ to 194¢; 31 in. 194¢ to 196¢; 31 1/2 in. 196¢ to 198¢; 32 in. 198¢ to 200¢; 32 1/2 in. 200¢ to 202¢; 33 in. 202¢ to 204¢; 33 1/2 in. 204¢ to 206¢; 34 in. 206¢ to 208¢; 34 1/2 in. 208¢ to 210¢; 35 in. 210¢ to 212¢; 35 1/2 in. 212¢ to 214¢; 36 in. 214¢ to 216¢; 36 1/2 in. 216¢ to 218¢; 37 in. 218¢ to 220¢; 37 1/2 in. 220¢ to 222¢; 38 in. 222¢ to 224¢; 38 1/2 in. 224¢ to 226¢; 39 in. 226¢ to 228¢; 39 1/2 in. 228¢ to 230¢; 40 in. 230¢ to 232¢; 40 1/2 in. 232¢ to 234¢; 41 in. 234¢ to 236¢; 41 1/2 in. 236¢ to 238¢; 42 in. 238¢ to 240¢; 42 1/2 in. 240¢ to 242¢; 43 in. 242¢ to 244¢; 43 1/2 in. 244¢ to 246¢; 44 in. 246¢ to 248¢; 44 1/2 in. 248¢ to 250¢; 45 in. 250¢ to 252¢; 45 1/2 in. 252¢ to 254¢; 46 in. 254¢ to 256¢; 46 1/2 in. 256¢ to 258¢; 47 in. 258¢ to 260¢; 47 1/2 in. 260¢ to 262¢; 48 in. 262¢ to 264¢; 48 1/2 in. 264¢ to 266¢; 49 in. 266¢ to 268¢; 49 1/2 in. 268¢ to 270¢; 50 in. 270¢ to 272¢; 50 1/2 in. 272¢ to 274¢; 51 in. 274¢ to 276¢; 51 1/2 in. 276¢ to 278¢; 52 in. 278¢ to 280¢; 52 1/2 in. 280¢ to 282¢; 53 in. 282¢ to 284¢; 53 1/2 in. 284¢ to 286¢; 54 in. 286¢ to 288¢; 54 1/2 in. 288¢ to 290¢; 55 in. 290¢ to 292¢; 55 1/2 in. 292¢ to 294¢; 56 in. 294¢ to 296¢; 56 1/2 in. 296¢ to 298¢; 57 in. 298¢ to 300¢; 57 1/2 in. 300¢ to 302¢; 58 in. 302¢ to 304¢; 58 1/2 in. 304¢ to 306¢; 59 in. 306¢ to 308¢; 59 1/2 in. 308¢ to 310¢; 60 in. 310¢ to 312¢; 60 1/2 in. 312¢ to 314¢; 61 in. 314¢ to 316¢; 61 1/2 in. 316¢ to 318¢; 62 in. 318¢ to 320¢; 62 1/2 in. 320¢ to 322¢; 63 in. 322¢ to 324¢; 63 1/2 in. 324¢ to 326¢; 64 in. 326¢ to 328¢; 64 1/2 in. 328¢ to 330¢; 65 in. 330¢ to 332¢; 65 1/2 in. 332¢ to 334¢; 66 in. 334¢ to 336¢; 66 1/2 in. 336¢ to 338¢; 67 in. 338¢ to 340¢; 67 1/2 in. 340¢ to 342¢; 68 in. 342¢ to 344¢; 68 1/2 in. 344¢ to 346¢; 69 in. 346¢ to 348¢; 69 1/2 in. 348¢ to 350¢; 70 in. 350¢ to 352¢; 70 1/2 in. 352¢ to 354¢; 71 in. 354¢ to 356¢; 71 1/2 in. 356¢ to 358¢; 72 in. 358¢ to 360¢; 72 1/2 in. 360¢ to 362¢; 73 in. 362¢ to 364¢; 73 1/2 in. 364¢ to 366¢; 74 in. 366¢ to 368¢; 74 1/2 in. 368¢ to 370¢; 75 in. 370¢ to 372¢; 75 1/2 in. 372¢ to 374¢; 76 in. 374¢ to 376¢; 76 1/2 in. 376¢ to 378¢; 77 in. 378¢ to 380¢; 77 1/2 in. 380¢ to 382¢; 78 in. 382¢ to 384¢; 78 1/2 in. 384¢ to 386¢; 79 in. 386¢ to 388¢; 79 1/2 in. 388¢ to 390¢; 80 in. 390¢ to 392¢; 80 1/2 in. 392¢ to 394¢; 81 in. 394¢ to 396¢; 81 1/2 in. 396¢ to 398¢; 82 in. 398¢ to 400¢; 82 1/2 in. 400¢ to 402¢; 83 in. 402¢ to 404¢; 83 1/2 in. 404¢ to 406¢; 84 in. 406¢ to 408¢; 84 1/2 in. 408¢ to 410¢; 85 in. 410¢ to 412¢; 85 1/2 in. 412¢ to 414¢; 86 in. 414¢ to 416¢; 86 1/2 in. 416¢ to 418¢; 87 in. 418¢ to 420¢; 87 1/2 in. 420¢ to 422¢; 88 in. 422¢ to 424¢; 88 1/2 in. 424¢ to 426¢; 89 in. 426¢ to 428¢; 89 1/2 in. 428¢ to 430¢; 90 in. 430¢ to 432¢; 90 1/2 in. 432¢ to 434¢; 91 in. 434¢ to 436¢; 91 1/2 in. 436¢ to 438¢; 92 in. 438¢ to 440¢; 92 1/2 in. 440¢ to 442¢; 93 in. 442¢ to 444¢; 93 1/2 in. 444¢ to 446¢; 94 in. 446¢ to 448¢; 94 1/2 in. 448¢ to 450¢; 95 in. 450¢ to 452¢; 95 1/2 in. 452¢ to 454¢; 96 in. 454¢ to 456¢; 96 1/2 in. 456¢ to 458¢; 97 in. 458¢ to 460¢; 97 1/2 in. 460¢ to 462¢; 98 in. 462¢ to 464¢; 98 1/2 in. 464¢ to 466¢; 99 in. 466¢ to 468¢; 99 1/2 in. 468¢ to 470¢; 100 in. 470¢ to 472¢; 100 1/2 in. 472¢ to 474¢; 101 in. 474¢ to 476¢; 101 1/2 in. 476¢ to 478¢; 102 in. 478¢ to 480¢; 102 1/2 in. 480¢ to 482¢; 103 in. 482¢ to 484¢; 103 1/2 in. 484¢ to 486¢; 104 in. 486¢ to 488¢; 104 1/2 in. 488¢ to 490¢; 105 in. 490¢ to 492¢; 105 1/2 in. 492¢ to 494¢; 106 in. 494¢ to 496¢; 106 1/2 in. 496¢ to 498¢; 107 in. 498¢ to 500¢; 107 1/2 in. 500¢ to 502¢; 108 in. 502¢ to 504¢; 108 1/2 in. 504¢ to 506¢; 109 in. 506¢ to 508¢; 109 1/2 in. 508¢ to 510¢; 110 in. 510¢ to 512¢; 110 1/2 in. 512¢ to 514¢; 111 in. 514¢ to 516¢; 111 1/2 in. 516¢ to 518¢; 112 in. 518¢ to 520¢; 112 1/2 in. 520¢ to 522¢; 113 in. 522¢ to 524¢; 113 1/2 in. 524¢ to 526¢; 114 in. 526¢ to 528¢; 114 1/2 in. 528¢ to 530¢; 115 in. 530¢ to 532¢; 115 1/2 in. 532¢ to 534¢; 116 in. 534¢ to 536¢; 116 1/2 in. 536¢ to 538¢; 117 in. 538¢ to 540¢; 117 1/2 in. 540¢ to 542¢; 118 in. 542¢ to 544¢; 118 1/2 in. 544¢ to 546¢; 119 in. 546¢ to 548¢; 119 1/2 in. 548¢ to 550¢; 120 in. 550¢ to 552¢; 120 1/2 in. 552¢ to 554¢; 121 in. 554¢ to 556¢; 121 1/2 in. 556¢ to 558¢; 122 in. 558¢ to 560¢; 122 1/2 in. 560¢ to 562¢; 123 in. 562¢ to 564¢; 123 1/2 in. 564¢ to 566¢; 124 in. 566¢ to 568¢; 124 1/2 in. 568¢ to 570¢; 125 in. 570¢ to 572¢; 125 1/2 in. 572¢ to 574¢; 126 in. 574¢ to 576¢; 126 1/2 in. 576¢ to 578¢; 127 in. 578¢ to 580¢; 127 1/2 in. 580¢ to 582¢; 128 in. 582¢ to 584¢; 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149 1/2 in. 668¢ to 670¢; 150 in. 670¢ to 672¢; 150 1/2 in. 672¢ to 674¢; 151 in. 674¢ to 676¢; 151 1/2 in. 676¢ to 678¢; 152 in. 678¢ to 680¢; 152 1/2 in. 680¢ to 682¢; 153 in. 682¢ to 684¢; 153 1/2 in. 684¢ to 686¢; 154 in. 686¢ to 688¢; 154 1/2 in. 688¢ to 690¢; 155 in. 690¢ to 692¢; 155 1/2 in. 692¢ to 694¢; 156 in. 694¢ to 696¢; 156 1/2 in. 696¢ to 698¢; 157 in. 698¢ to 700¢; 157 1/2 in. 700¢ to 702¢; 158 in. 702¢ to 704¢; 158 1/2 in. 704¢ to 706¢; 159 in. 706¢ to 708¢; 159 1/2 in. 708¢ to 710¢; 160 in. 710¢ to 712¢; 160 1/2 in. 712¢ to 714¢; 161 in. 714¢ to 716¢; 161 1/2 in. 716¢ to 718¢; 162 in. 718¢ to 720¢; 162 1/2 in. 720¢ to 722¢; 163 in. 722¢ to 724¢; 163 1/2 in. 724¢ to 726¢; 164 in. 726¢ to 728¢; 164 1/2 in. 728¢ to 730¢; 165 in. 730¢ to 732¢; 165 1/2 in. 732¢ to 734¢; 166 in. 734¢ to 736¢; 166 1/2 in. 736¢ to 738¢; 167 in. 738¢ to 740¢; 167 1/2 in. 740¢ to 742¢; 168 in. 742¢ to 744¢; 168 1/2 in. 744¢ to 746¢; 169 in. 746¢ to 748¢; 169 1/2 in. 748¢ to 750¢; 170 in. 750¢ to 752¢; 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233 1/2 in. 1004¢ to 1006¢; 234 in. 1006¢ to 1008¢; 234 1/2 in. 1008¢ to 1010¢; 235 in. 1010¢ to 1012¢; 235 1/2 in. 1012¢ to 1014¢; 236 in. 1014¢ to 1016¢; 236 1/2 in. 1016¢ to 1018¢; 237 in. 1018¢ to 1020¢; 237 1/2 in. 1020¢ to 1022¢; 238 in. 1022¢ to 1024¢; 238 1/2 in. 1024¢ to 1026¢; 239 in. 1026¢ to 1028¢; 239 1/2 in. 1028¢ to 1030¢; 240 in. 1030¢ to 1032¢; 240 1/2 in. 1032¢ to 1034¢; 241 in. 1034¢ to 1036¢; 241 1/2 in. 1036¢ to 1038¢; 242 in. 1038¢ to 1040¢; 242 1/2 in. 1040¢ to 1042¢; 243 in. 1042¢ to 1044¢; 243 1/2 in. 1044¢ to 1046¢; 244 in. 1046¢ to 1048¢; 244 1/2 in. 1048¢ to 1050¢; 245 in. 1050¢ to 1052¢; 245 1/2 in. 1052¢ to 1054¢; 246 in. 1054¢ to 1056¢; 246 1/2 in. 1056¢ to 1058¢; 247 in. 1058¢ to 1060¢; 247 1/2 in. 1060¢ to 1062¢; 248 in. 1062¢ to 1064¢; 248 1/2 in. 1064¢ to 1066¢; 249 in. 1066¢ to 1068¢; 249 1/2 in. 1068¢ to 1070¢; 250 in. 1070¢ to 1072¢; 250 1/2 in. 1072¢ to 1074¢; 251 in. 1074¢ to 1076¢; 251 1/2 in. 1076¢ to 1078¢; 252 in. 1078¢ to 1080¢; 252 1/2 in. 1080¢ to 1082¢; 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27

MARKETS—PRICES—TRENDS



SCRAP

Iron & Steel

Pittsburgh Formula Freeze Critics Grumble

The formula freeze in Pittsburgh and other areas has two unwilling participants who can't shake loose at this time. They are some brokers and small consumers who find it hard to keep the mill fires burning at scrap tonnages they can pick up at formula prices.

Railroad items and cast grades were alive in a number of markets and most active in Detroit where the price of No. 1 cupola cast advanced \$7 to a top of \$62. Sources there predicted that cast would hit an all-time high. Detroit industrial lists for November went at formula, it was reported.

The formula hold did not slacken this week but pent-up rebellion and upsurging prices of other items may have a sudden cumulative effect to undermine it.

In Cleveland and in the Valley speculation was thick as to how long the formula could endure. Brokers were not eager for new orders and springboards were not dragging in enough tonnage. In New York it was rumored that mills were putting on a stiffer squeeze to maintain the formula.

PITTSBURGH—Increasing dissatisfaction with controlled prices of heavy melting grades is noted here. Both brokers and small consumers are grumbling. The small mills are finding it difficult to get enough scrap at formula prices. Cast grades are stronger. One foundry is buying on a cost-plus basis, that is, will pay whatever the broker can pick it up for, plus a commission. Railroad specialties were \$1 higher.

CHICAGO—The Chicago market is very strong again this week although mill buying is continuing at formula. The strength of the local market is best reflected in railroad lists where some items are moving at prices as much as \$7.50 over the formula level. Most railroad grades are higher again this week with the exception of railroad couplers and knuckles where the price has been revised to eliminate the influence of parts resold as used rather than as scrap.

PHILADELPHIA—Steel grade formula prices are being held by the mill consumers in this district but the cast market is soaring again this week. No. 1 machinery cast, yard cast and heavy breakable cast are all quotable at \$2 per ton higher this week. Malleable and cast iron car wheels are also higher. Crop rails are priced at \$64 to \$66 a ton and RR specialties are up. Increasing shipments of overseas cast iron and steel scrap are reported.

NEW YORK—Mills are exerting greater pressure to maintain the formula price front and no one seems willing to step out of line. Demand for scrap is there and the movement is not what it should be for this time of year. The price of No. 1 heavy has shied away from the \$34

bottom of THE IRON AGE quotation to the \$34.50 top. It appears the mills are willing to sacrifice some tonnage to keep formulas intact. Cast grades continued their upward trek and were, as usual, strong. The turnings group made short gains.

DETROIT—Industrial lists for November have gone at formula, the trade reports. Practically all the industrial tonnage in the area will move this month on allocations. The scrap is widely dispersed, indicating that all mills are participating to some extent. Meanwhile, prices of cast iron grades are running wild, advancing here \$7 per ton this past week. Sources close to this market now predict that cast is headed for an all-time high before the present upward trend can be effectively checked.

CLEVELAND—Big question of the week here is how long can the market be contained at the formula Q. A possible key is one of the non-integrated consumers in the valley whose inventories are down to the grass roots level. This mill is completely dependent on current shipments and a lag of 72 hours would result in curtailed operations. Springboards and other expedients within the limits of the formula have thus far failed to bring in tonnage. A move by this mill in the direction of higher prices would spearhead a drive on the formula and probably break it. Some brokers don't want any more orders at the formula except on earmarked tonnage.

ST. LOUIS—Activity in railroad specialties and foundry grades continues to lead in the market here and most items are up again this week. The strong market is due to heavy demand caused by good business and a shift from pig iron which is tight and higher, plus a shortage of the material. Other markets are said to be drawing melting grades from St. Louis and brokers mention upgrading.

CINCINNATI—Formula price of No. 1 heavy melting steel was badly bent but not broken in a price melee here. The market is very strong and confused, with some consumers on the formula and others off. In an effort to bring out more tonnage, price of No. 2 heavy melting steel and No. 2 black bundles was advanced to \$39.50, thus narrowing the spread between No. 1 and No. 2. Brokers report allocated tonnage is hindering the movement, with dealers unwilling to sell tonnage.

BOSTON—For the first time in 6 weeks, there was no change in scrap or cast prices here. Activity was good. No. 1 heavy melting remained at \$32.50 where it has been for the last month.

BIRMINGHAM—Scrap is coming into the district only in dribbles and brokers are having difficulty filling orders in a tight market. Prices continue steady, the only increase being registered this week being a \$3 boost in scrap rails, random lengths, to \$54.

BUFFALO—Additional orders have been placed on extended contracts on steelmaking grades within the formula ranges. Meanwhile, sales of limited tonnages were reported for No. 1 heavy melting beyond the voluntary ranges. Strength was in evidence in blast furnace items. Cast iron borings were moving at \$35-\$36 a ton. A gain of \$2.

"PIG FOR PIG - CAR FOR CAR"

THE QUALITY AND UNIFORMITY OF

**KEOKUK
ELECTRO-SILVER**

NEVER VARIES

60 lb. pigs

30 lb. pigs

12½ lb. piglets

PRINCESS
WENATCHEE

CHIEF KEOKUK

CHIEF
KEOKUK
JR.

KEOKUK ELECTRO-METALS COMPANY

Keokuk, Iowa • Wenatchee Division: Wenatchee, Washington

SALES AGENTS: Miller and Company

332 S. Michigan Avenue, Chicago 4, Ill. • 3504 Carew Tower,
Cincinnati 2, Ohio • 407 N. Eighth Street, St. Louis 1, Missouri

November 2, 1950

139

Iron and Steel

SCRAP PRICES

Going prices as obtained in the trade by THE IRON AGE, based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	\$43.50 to \$44.00
No. 2 hvy. melting	40.50 to 41.00
No. 1 bundles	46.00 to 46.50
No. 2 bundles	38.50 to 39.00
Machine shop turn.	34.50 to 35.00
Mixed bor. and ms. turns.	34.50 to 35.00
Shoveling turnings	37.50 to 38.00
Cast iron borings	37.00 to 37.50
Low phos. plate	51.50 to 52.00
Heavy turnings	44.50 to 45.00
No. 1 RR. hvy. melting	44.00 to 45.00
Scrap rails, random lgth.	60.50 to 61.00
Rails 2 ft and under	67.00 to 68.00
RR. steel wheels	57.00 to 58.00
RR. spring steel	57.00 to 58.00
RR. couplers and knuckles	57.00 to 58.00
No. 1 machinery cast	57.50 to 58.00
Mixed yard cast	52.50 to 53.00
Heavy breakable cast	49.50 to 50.00
Malleable	65.00 to 66.00

Chicago

No. 1 hvy. melting	\$39.50 to \$40.00
No. 2 hvy. melting	37.50 to 38.00
No. 1 factory bundles	39.50 to 40.00
No. 1 dealers' bundles	39.50 to 40.00
No. 2 dealers' bundles	34.00 to 35.00
Machine shop turn.	33.00 to 34.00
Mixed bor. and turn.	33.00 to 34.00
Shoveling turnings	33.00 to 34.00
Cast iron borings	33.00 to 34.00
Low phos. forge crops	52.00 to 53.00
Low phos. plate	51.00 to 52.00
No. 1 RR. hvy. melting	46.50 to 47.50
Scrap rails, random lgth.	59.00 to 60.00
Revolving rails	62.00 to 63.00
Rails 2 ft and under	63.50 to 65.00
Locomotive tires, cut	56.00 to 57.00
Cut bolsters & side frames	54.00 to 55.00
Angles and splice bars	61.00 to 62.00
RR. steel car axles	89.00 to 90.00
RR. couplers and knuckles	57.00 to 58.00
No. 1 machinery cast	56.00 to 58.00
No. 1 agricul. cast	53.00 to 54.00
Heavy breakable cast	46.00 to 48.00
RR. grate bars	45.00 to 46.00
Cast iron brake shoes	47.50 to 48.50
Cast iron car wheels	56.00 to 57.00
Malleable	65.00 to 66.00

Philadelphia

No. 1 hvy. melting	\$38.00 to \$39.00
No. 2 hvy. melting	35.00 to 36.00
No. 1 bundles	38.00 to 39.00
No. 2 bundles	31.00 to 32.00
Machine shop turn.	28.00 to 29.00
Mixed bor. and turn.	26.00 to 27.00
Shoveling turnings	32.00 to 33.00
Low phos. punchings, plate	49.00 to 50.00
Low phos. 5 ft and under	48.00 to 49.00
Low phos. bundles	44.00 to 45.00
Hvy. axle forge turn.	38.00 to 39.00
Clean cast chem. borings	39.00 to 40.00
RR. steel wheels	51.00 to 52.00
RR. spring steel	51.00 to 52.00
Rails 18 in. and under	64.00 to 66.00
No. 1 machinery cast	53.00 to 54.00
Mixed yard cast	49.00 to 50.00
Heavy breakable cast	49.00 to 50.00
Cast iron car wheels	58.00 to 60.00
Malleable	62.00 to 64.00

Cleveland

No. 1 hvy. melting	\$43.00 to \$43.50
No. 2 hvy. melting	40.00 to 40.50
No. 1 busheling	43.00 to 43.50
No. 1 bundles	43.00 to 43.50
No. 2 bundles	28.00 to 28.50
Machine shop turn.	35.00 to 35.50
Mixed bor. and turn.	36.00 to 36.50
Shoveling turnings	37.00 to 37.50
Cast iron borings	37.00 to 37.50
Low phos. 2 ft and under	45.50 to 46.00
Steel axle turn.	43.00 to 43.50
Drop forge flashings	43.00 to 43.50
No. 1 RR. hvy. melting	43.50 to 44.00
Rails 3 ft and under	65.00 to 66.00
Rails 18 in. and under	66.00 to 67.00
No. 1 machinery cast	62.00 to 63.00
RR. cast	62.00 to 63.00
RR. grate bars	45.00 to 46.00
Stove plate	50.00 to 51.00
Malleable	66.00 to 67.00

Youngstown

No. 1 hvy. melting	\$43.50 to \$44.00
No. 2 hvy. melting	40.50 to 41.00
No. 1 bundles	43.50 to 44.00

No. 2 bundles	\$38.50 to \$39.00
Machine shop turn.	35.50 to 36.00
Shoveling turnings	37.50 to 38.00
Cast iron borings	37.50 to 38.00
Low phos. plate	46.00 to 46.50

Buffalo

No. 1 hvy. melting	\$41.00 to \$42.00
No. 2 hvy. melting	37.50 to 38.50
No. 1 busheling	37.50 to 38.50
No. 1 bundles	39.50 to 40.00
No. 2 bundles	36.00 to 36.50
Machine shop turn.	34.00 to 35.00
Mixed bor. and turn.	35.00 to 36.00
Shoveling turnings	35.00 to 36.00
Cast iron borings	35.00 to 36.00
Low phos. plate	44.50 to 45.00
Scrap rails, random lgth.	52.00 to 53.00
Rails 2 ft and under	59.00 to 61.00
RR. steel wheels	52.00 to 53.00
RR. spring steel	52.00 to 53.00
RR. couplers and knuckles	52.00 to 53.00
No. 1 machinery cast	47.00 to 48.00
No. 1 cupola cast	44.50 to 45.00
Small indus. malleable	56.00 to 57.00

Birmingham

No. 1 hvy. melting	\$36.00 to \$37.00
No. 2 hvy. melting	33.00 to 34.00
No. 2 bundles	31.00 to 32.00
No. 1 busheling	34.00 to 35.00
Machine shop turn.	27.00 to 28.00
Shoveling turnings	29.00 to 30.00
Cast iron borings	25.00 to 26.00
Bar crops and plate	44.00 to 45.00
Structural and plate	44.00 to 45.00
No. 1 RR. hvy. melting	41.00 to 42.00
Scrap rails, random lgth.	53.00 to 54.00
Revolving rails	58.00 to 59.00
Rails 2 ft. and under	61.00 to 62.00
Angles & splice bars	54.00 to 55.00
Std. steel axles	59.00 to 60.00
No. 1 cupola cast	54.00 to 55.00
Stove plate	48.00 to 49.00
Cast iron car wheels	46.00 to 47.00

St. Louis

No. 1 hvy. melting	\$41.00 to \$42.00
No. 2 hvy. melting	36.00 to 37.00
No. 2 bundled sheets	35.00 to 36.00
Machine shop turn.	27.50 to 28.50
Shoveling turnings	30.00 to 31.00
Rails, random lengths	55.00 to 57.00
Rails 3 ft and under	60.00 to 62.00
Locomotive tires, uncut	53.00 to 54.00
Angles and splice bars	56.00 to 58.00
Std. steel car axles	76.00 to 78.00
RR. spring steel	55.00 to 57.00
No. 1 machinery cast	51.00 to 53.00
Hvy. breakable cast	43.00 to 45.00
Cast iron brake shoes	45.00 to 46.00
Stove plate	41.00 to 43.00
Cast iron car wheels	54.00 to 55.00
Malleable	60.00 to 63.00

New York

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$34.00 to \$34.50
No. 2 hvy. melting	29.00 to 30.00
No. 2 bundles	28.50 to 29.00
Machine shop turn.	24.50 to 25.50
Mixed bor. and turn.	24.50 to 25.50
Shoveling turnings	26.50 to 27.50
Clean cast chem. bor.	34.50 to 35.50
No. 1 machinery cast	42.00 to 43.00
Mixed yard cast	40.00 to 41.00
Charging box cast	40.00 to 41.00
Heavy breakable cast	40.00 to 41.00
Unstrp. motor blocks	35.00 to 36.00

Boston

Brokers' buying prices per gross ton, on cars:	
No. 1 hvy. melting	\$32.50
No. 2 hvy. melting	\$29.00 to 29.50
No. 1 bundles	32.50

No. 2 bundles	\$27.50 to \$28.00
Machine shop turn.	24.00 to 24.50
Mixed bor. and turn.	23.50 to 24.00
Shoveling turnings	25.50 to 26.00
No. 1 busheling	31.50 to 32.00
Clean cast chem. borings	29.00 to 30.00
No. 1 machinery cast	41.00 to 42.00
Mixed cupola cast	37.00 to 38.00
Heavy breakable cast	36.50 to 37.00
Stove plate	36.50 to 37.00

Detroit

Brokers' buying prices per gross ton, on cars:

No. 1 hvy. melting	\$37.00 to \$37.50
No. 2 hvy. melting	32.00 to 32.50
No. 1 bundles	37.00 to 37.50
New busheling	37.00 to 37.50
Flashings	37.00 to 37.50
Machine shop turn.	29.00 to 29.50
Mixed bor. and turn.	29.00 to 29.50
Shoveling turnings	31.00 to 31.50
Cast iron borings	31.00 to 31.50
Low phos. plate	39.00 to 40.00
No. 1 cupola cast	60.00 to 62.00
Heavy breakable cast	51.00 to 53.00
Stove plate	51.00 to 52.00
Automotive cast	63.00 to 65.00

Cincinnati

Per gross ton, f.o.b. cars:

No. 1 hvy. melting	\$42.00 to \$42.50
No. 2 hvy. melting	39.00 to 39.50
No. 1 bundles	42.00 to 42.50
No. 2 bundles, black	39.00 to 39.50
No. 2 bundles, mixed	32.50 to 33.00
Machine shop turn.	28.50 to 29.00
Mixed bor. and turn.	29.50 to 30.00
Shoveling turnings	30.50 to 31.00
Cast iron borings	30.50 to 31.00
Low phos. 18 in. under	55.00 to 56.00
Rails, random lengths	61.00 to 62.00
Rails, 18 in. and under	69.00 to 70.00
No. 1 cupola cast	61.00 to 62.00
Hvy. breakable cast	51.00 to 52.00
Drop broken cast	65.00 to 66.00

San Francisco

No. 1 hvy. melting	\$26.50
No. 2 hvy. melting	24.50
No. 1 bundles	26.50
No. 2 bundles	22.50
No. 3 bundles	19.50
Machine shop turn.	13.00
Elec. fur. 1 ft and under	40.00
No. 1 RR. hvy. melting	26.50
Scrap rails, random lgth.	26.50
No. 1 cupola cast	\$43.00 to 46.00

Los Angeles

No. 1 hvy. melting	\$26.50
No. 2 hvy. melting	24.50
No. 1 bundles	26.50
No. 2 bundles	22.50
No. 3 bundles	19.50
Mach. shop turn.	13.00
Elec. fur. 1 ft and under	44.00 to 47.00
No. 1 RR. hvy. melting	26.50
Scrap rails, random lgth.	26.50
No. 1 cupola cast	\$46.00 to 48.00

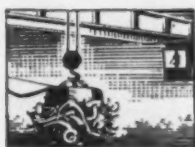
Seattle

No. 1 hvy. melting	\$24.00 to \$28.00
No. 2 hvy. melting	24.00 to 28.00
No. 1 bundles	22.00
No. 2 bundles	22.00
No. 3 bundles	18.00
Elec. fur. 1 ft and under	\$29.00 to 30.00
RR. hvy. melting	26.00
No. 1 cupola cast	35.00
Heavy breakable cast	35.00

Hamilton, Ont.

No. 1 hvy. melting	\$30.00
No. 1 bundles	30.00
No. 2 bundles	29.50
Mechanical bundles	28.00
Mixed steel scrap	26.00
Mixed bor. and turn.	23.00
Rails, remelting	30.00
Rails, re-rolling	33.00
Bushelings	24.50
Bush., new fact, prep'd.	29.00
Bush., new fact, unprep'd.	23.00
Short steel turnings	29.00
Cast scrap	46.00

For the Purchase or Sale of
Iron and Steel Scrap . . .
CONSULT OUR NEAREST OFFICE



Since 1889 Luria Brothers and Company, Incorporated, have maintained their leadership in the industry by keeping abreast of the most modern methods . . . by seeking out the best markets in every part of the world . . . by strategically locating their offices to best serve the interests of their customers.

LURIA BROTHERS & COMPANY, INCORPORATED

LINCOLN-LIBERTY BUILDING
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 Pacific Gas & Electric Co., Bldg.

LEADERS IN IRON AND STEEL SCRAP SINCE 1889

Comparison of Prices

Steel prices in this page are the average of various f.o.b. quotations of major producing areas: Pittsburgh, Chicago, Gary, Cleveland, Youngstown.

Flat-Rolled Steel	Oct. 31, 1950	Oct. 24, 1950	Oct. 3, 1950	Nov. 1, 1949
(cents per pound)	1950	1950	1950	1949
Hot-rolled sheets	3.35	3.35	3.35	3.25
Cold-rolled sheets	4.10	4.10	4.10	4.00
Galvanized sheets (10 ga)	4.40	4.40	4.40	4.40
Hot-rolled strip	3.25	3.25	3.25	3.25
Cold-rolled strip	4.21	4.21	4.21	4.038
Plate	3.50	3.50	3.50	3.40
Plates wrought iron	7.85	7.85	7.85	7.85
Stains C-R strip (No. 302)	34.50	34.50	34.50	33.00

Tin and Terneplate:

(dollars per base box)				
Tinplate (1.50 lb) cokes	\$7.50	\$7.50	\$7.50	\$7.75
Tinplate, electro (0.50 lb)	6.60	6.60	6.60	6.70
Special coated mfg. ternes	6.35	6.35	6.35	6.65

Bars and Shapes:

(cents per pound)				
Merchant bars	3.45	3.45	3.45	3.35
Cold finished bars	4.15	4.15	4.145	3.995
Alloy bars	3.95	3.95	3.95	3.75
Structural shapes	3.40	3.40	3.40	3.25
Stainless bars (No. 302)	30.00	30.00	30.00	28.50
Wrought iron bars	9.50	9.50	9.50	9.50

Wire:

(cents per pound)				
Bright wire	4.50	4.50	4.50	4.15

Rails:

(dollars per 100 lb)				
Heavy rails	\$3.40	\$3.40	\$3.40	\$3.20
Light rails	3.75	3.75	3.75	3.55

Semifinished Steel:

(dollars per net ton)				
Rerolling billets	\$54.00	\$54.00	\$54.00	\$52.00
Slabs, rerolling	54.00	54.00	54.00	52.00
Forging billets	63.00	63.00	63.00	61.00
Alloy blooms, billets, slabs	66.00	66.00	66.00	63.00

Wire Rod and Skelp:

(cents per pound)				
Wire rods	3.85	3.85	3.85	3.40
Skelp	3.15	3.15	3.15	3.25

Price advances over previous week are printed in Heavy Type; declines appear in *Italics*.

Pig Iron:

	Oct. 31, 1950	Oct. 24, 1950	Oct. 3, 1950	Nov. 1, 1949
(per gross ton)				
No. 2, foundry, del'd Phila.	\$52.77	\$52.77	\$51.76	\$50.42
No. 2, Valley furnace	49.50	49.50	49.50	46.50
No. 2, Southern Cin'ti	52.58	52.58	52.58	46.08
No. 2, Birmingham	45.88	45.88	45.88	39.38
No. 2, foundry, Chicago†	49.50	49.50	49.50	46.50
Basic del'd Philadelphia	51.92	51.92	50.92	49.92
Basic, Valley furnace	49.00	49.00	49.00	46.00
Malleable, Chicago†	49.50	49.50	49.50	46.50
Malleable, Valley	49.50	49.50	49.50	46.50
Charcoal, Chicago	70.56	70.56	70.56	68.56
Ferromanganese‡	173.40	173.40	173.40	173.40

†The switching charge for delivery to foundries in the Chicago district is \$1 per ton.

‡Average of U. S. prices quoted on Ferroalloy page.

Scrap:

(per gross ton)				
Heavy melt'g steel, P'gh.	\$43.75	\$43.75	\$43.75	\$29.75
Heavy melt'g steel, Phila.	38.50	38.50	38.50	22.50
Heavy melt'g steel, Ch'go	39.75	39.75	39.75	30.50
No. 1 hy. com. sh't, Det.	37.25	37.25	37.25	23.50
Low phos. Young'n	46.25	46.25	46.25	29.75
No. 1 cast, Pittsburgh	57.75	55.75	52.75	39.50
No. 1 cast, Philadelphia	53.50	51.50	48.50	37.00
No. 1 cast, Chicago	57.00	55.50	50.50	42.00

Coke: Connellsville:

(per net ton at oven)				
Furnace coke, prompt	\$14.25	\$14.25	\$14.25	\$14.25
Foundry coke, prompt	16.75	16.75	16.75	15.75

Nonferrous Metals:

(cents per pound to large buyers)				
Copper, electro, Conn.	24.50	24.50	24.50	17.625
Copper, Lake, Conn.	24.625	24.625	24.625	17.75
Tin Straits, New York	\$1.26†	\$1.175*	\$1.0575	94.00
Zinc, East St. Louis	17.50	17.50	17.50	9.50
Lead, St. Louis	15.80	15.80	15.80	12.80
Aluminum, virgin	19.00	19.00	19.00	17.00
Nickel, electrolytic	51.22	51.22	51.22	42.97
Magnesium, ingot	24.50	24.50	24.50	20.50
Antimony, Laredo, Tex.	32.00	32.00	32.00	32.00

†Tentative. *Revised.

[Starting with the issue of May 12, 1949, the weighted finished steel composite was revised for the years 1941 to date. The weights used are based on the average product shipments for the 7 years 1937 to 1940 inclusive and 1946 to 1948 inclusive. The use of quarterly figures has been eliminated because it was too sensitive. (See p. 139 of May 12, 1949, issue.)]

Composite Prices

Finished Steel Base Price

Oct. 31, 1950	3.837¢ per lb.
One week ago	3.837¢ per lb.
One month ago	3.837¢ per lb.
One year ago	3.705¢ per lb.

	High	Low
1950....	3.837¢ Jan. 3	3.837¢ Jan. 3
1949....	3.837¢ Dec. 27	3.3705¢ May 3
1948....	3.721¢ July 27	3.193¢ Jan. 1
1947....	3.193¢ July 29	2.848¢ Jan. 1
1946....	2.848¢ Dec. 31	2.464¢ Jan. 1
1945....	2.464¢ May 29	2.396¢ Jan. 1
1944....	2.396¢	2.396¢
1943....	2.396¢	2.396¢
1942....	2.396¢	2.396¢
1941....	2.396¢	2.396¢
1940....	2.30467¢ Jan. 2	2.24107¢ Apr. 16
1939....	2.35367¢ Jan. 3	2.26689¢ May 16
1938....	2.58414¢ Jan. 4	2.27207¢ Oct. 18
1937....	2.58414¢ Mar. 9	2.32263¢ Jan. 4
1936....	2.32263¢ Dec. 28	2.05200¢ Mar. 10
1935....	2.07542¢ Oct. 1	2.06492¢ Jan. 8
1932....	1.89196¢ July 5	1.83910¢ Mar. 1
1929....	2.31773¢ May 28	2.26498¢ Oct. 29

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold-rolled sheets and strips, representing major portion of finished steel shipment. Index recapitulated in Aug. 28, 1941, issue and in May 12, 1949.

Pig Iron

....\$49.36 per gross ton....
.... 49.36 per gross ton....
.... 49.19 per gross ton....
.... 45.88 per gross ton....

High		Low	
\$49.36	Oct. 17	\$45.88	Jan. 3
46.87	Jan. 18	45.88	Sept. 6
46.91	Oct. 12	39.58	Jan. 6
37.98	Dec. 30	30.14	Jan. 7
30.14	Dec. 10	25.37	Jan. 1
25.37	Oct. 23	23.61	Jan. 2
\$23.61		\$23.61	
23.61		23.61	
23.61		23.61	
\$23.61	Mar. 20	\$23.45	Jan. 2
23.45	Dec. 23	22.61	Jan. 2
22.61	Sept. 19	20.61	Sept. 12
23.25	June 21	19.61	July 6
32.25	Mar. 9	20.25	Feb. 16
19.74	Nov. 24	18.73	Aug. 11
18.84	Nov. 5	17.33	May 14
14.81	Jan. 5	13.56	Dec. 6
18.71	May 14	18.21	Dec. 17

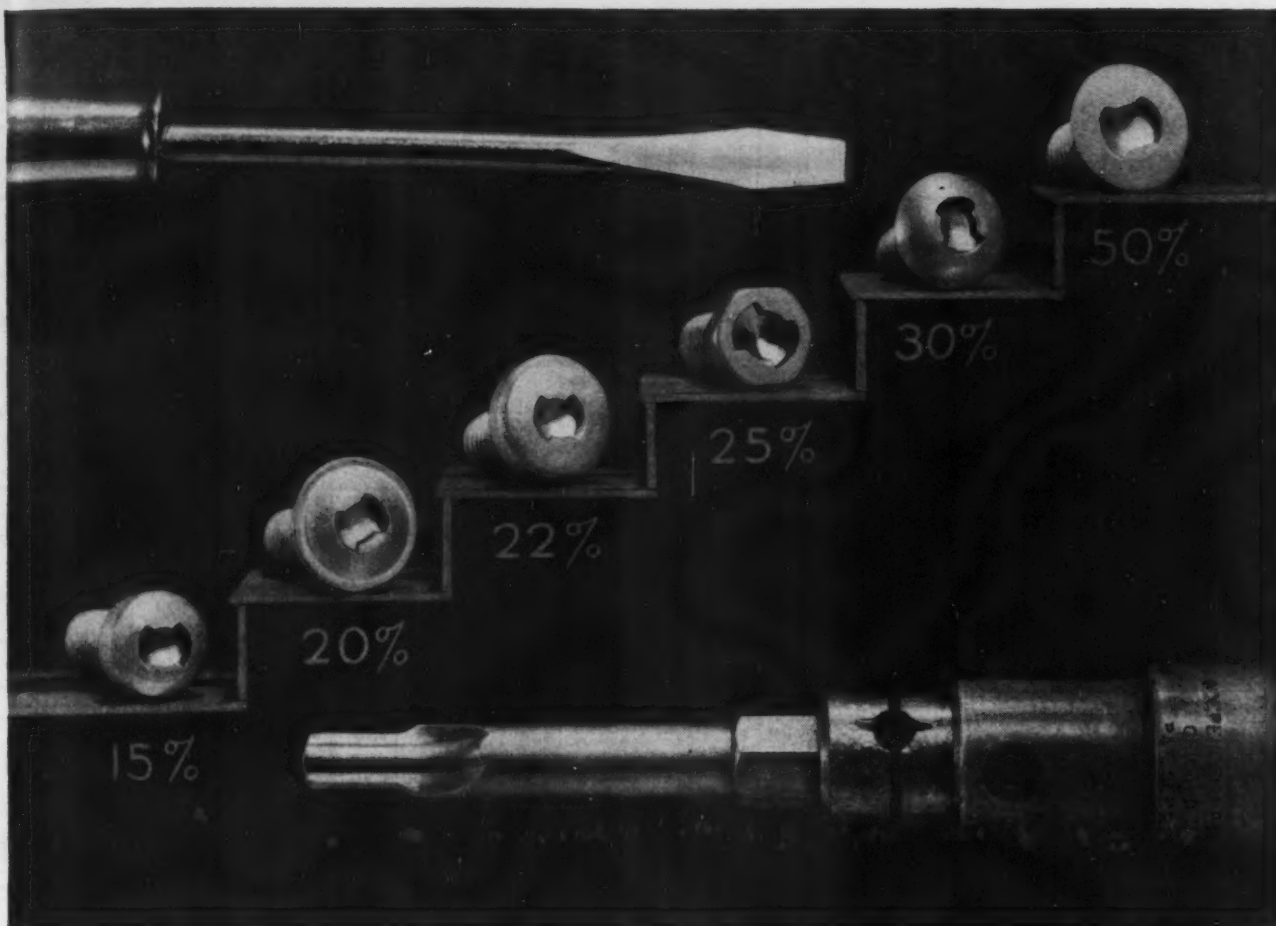
Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

Scrap Steel

....\$40.67 per gross ton....
.... 40.67 per gross ton....
.... 40.67 per gross ton....
.... 27.58 per gross ton....

High		Low	
\$41.58	Aug. 22	\$26.25	Jan. 3
43.00	Jan. 4	19.33	June 28
43.16	July 27	39.75	Mar. 9
42.58	Oct. 28	29.50	May 20
31.17	Dec. 24	19.17	Jan. 1
19.17	Jan. 2	18.92	May 22
19.17	Jan. 11	15.76	Oct. 24
\$19.17		\$19.17	
19.17		19.17	
\$22.00	Jan. 7	\$19.17	Apr. 10
21.83	Dec. 30	16.04	Apr. 9
22.50	Oct. 3	14.08	May 16
15.00	Nov. 22	11.00	June 7
21.92	Mar. 30	12.67	June 9
17.75	Dec. 21	12.67	June 8
13.42	Dec. 10	10.33	Apr. 29
8.50	Jan. 12	6.43	July 5
17.58	Jan. 29	14.08	Dec. 8

Average of No. 1 heavy melting scrap delivered to consumers at Pittsburgh, Philadelphia and Chicago.



The Percentage Is All in Your Favor

These production increases are from the records of assembly lines where change-over was made from *other* types of *recessed head* screws to CLUTCH HEAD

HERE'S HOW CLUTCH HEAD PAYS OFF IN GAINS AND SAVINGS

High visibility of the recess cancels out slow-down hesitation . . . confident operators logically drive more screws.
 Center Pivot entry prevents driver canting, insures straight driving . . . saves cost and delay of "fixing" burred or chewed-up heads.
 Non-tapered driving engagement reduces skid hazard to zero . . . protects manpower and saves costly damage to materials.
 All-square contact means no "ride-out" (as set up by tapered driving) . . . no fatiguing end pressure needed to combat "bucking."
 The CLUTCH HEAD Lock-On hurdles "fumble spots" on the line . . . unites screw and bit as a unit for one-handed reaching and driving.
 The rugged Type "A" Assembly Bit for unmatched tool economy . . . drives up to 214,000 screws non-stop on a high torque job.
 Check the extra profit stemming from this steady production flow . . . no time-wasting stoppages for frequent tool changing.
 Repeatable reconditioning multiplies the life of this bit . . . only a 60-second application of the end surface to a grinding wheel.
 This simple operation restores original efficiency, *time and time again* . . . no expense or bother of back-to-the-factory shipments.
 Consider the value of simplified field service . . . with a recess basically designed for common screwdriver operation.
 Your service men and customers save time on field adjustments . . . any flat blade reasonably accurate in width will do.

These exclusive time and money-saving features are fully described and illustrated in the new CLUTCH HEAD brochure. Send for your



copy, mentioning the sizes and types of screws, standard or special, that interest you...to come by mail and without obligation.

UNITED SCREW AND BOLT CORPORATION

CLEVELAND 2

CHICAGO 8

NEW YORK 7

November 2, 1950

143

IRON AGE STEEL PRICES	Smaller numbers in price boxes indicate producing companies. For main office locations, see key on facing page. Base prices at producing points apply only to sizes and grades produced in these areas. Prices are in cents per lb unless otherwise noted. Extras apply.													
	Pittsburgh	Chicago	Gary	Cleveland	Canton Massillon	Middle- town	Youngs- town	Bethle- hem	Buffalo	Conshe- hocken	Johns- town	Spar- rows Point	Granite City	Detroit
INGOTS Carbon forging, net ton	\$50.00 ¹													\$30.00 ¹
Alloy, net ton	\$81.00 ^{1,17}													\$81.00 ¹
BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton	\$53.00 ¹	\$53.00 ¹	\$53.00 ¹				\$57.00 ^{1,3}		\$53.00 ¹	\$62.00 ^{1,3}	\$53.00 ¹			
Carbon forging billets, net ton	\$63.00 ¹	\$63.00 ^{1,4}	\$63.00 ^{1,8}	\$63.00 ⁴			\$63.00 ^{2,3}		\$63.00 ^{1,4}	\$68.00 ^{2,3}	\$63.00 ³			\$68.00 ¹
Alloy, net ton	\$66.00 ^{1,17}	\$66.00 ^{1,4}	\$66.00 ¹		\$66.00 ^{1,4,2}			\$66.00 ¹	\$66.00 ^{1,4}	\$70.00 ^{2,3}	\$66.00 ³			\$69.00 ¹
PIPE SKELP	3.15 ¹						3.15 ^{1,4}							
WIRE RODS	3.65 ² 4.05 ^{1,8}	3.85 ^{2,4,23}	3.85 ²	3.85 ²			3.85 ²				3.85 ²	3.95 ²		
SHEETS Hot-rolled (18 ga. & hvr.)	3.35 ^{1,8,9,13}	3.35 ^{2,3}	3.35 ^{1,8,8}	3.35 ^{1,8}			3.35 ^{1,8} 3.75 ^{1,3}		3.35 ²	3.60 ^{2,3}		3.35 ²	4.05 ^{2,3}	3.55 ^{1,3} 4.15 ^{4,7}
Cold-rolled	4.10 ^{1,8,7,9,13} 5.10 ^{4,8}		4.10 ^{1,8,8}	4.10 ^{1,8}		4.10 ⁷	4.10 ^{1,8}		4.10 ³			4.10 ³	4.80 ^{2,3}	4.30 ^{1,3}
Galvanized (10 gage)	4.40 ^{1,8,13}		4.40 ^{1,8}		4.40 ¹		4.75 ⁴ 5.50 ⁴					4.40 ³		
Enameling (12 gage)	4.40 ¹		4.40 ^{1,8}	4.40 ⁴		4.40 ⁷	4.40 ¹ 4.90 ^{7,8} 5.55 ⁴						5.10 ^{2,3}	4.70 ^{1,3}
Long tees (10 gage)	4.80 ^{1,13}		4.80 ¹			4.80 ⁷	5.30 ⁴							
Hi Str. low alloy, h.r.	5.05 ^{1,8,9}	5.05 ¹	5.05 ^{1,8,8}	5.05 ^{1,4}			5.05 ^{1,4} 5.30 ^{1,8} 5.40 ^{1,3}		5.05 ³	5.05 ^{2,3}		5.05 ³		5.50 ^{1,3}
Hi str. low alloy, c.r.	6.20 ^{1,8,9}		6.20 ^{1,8,8}	6.20 ^{1,4}			6.20 ^{1,4} 6.45 ^{1,3}		6.20 ³			6.20 ³		6.85 ^{1,3}
Hi str. low alloy, galv.	6.75 ¹											6.75 ³		
STRIP Hot-rolled	3.25 ^{1,7,9} 3.50 ^{1,8} 3.75 ^{1,1}	3.25 ^{1,8,8}	3.25 ^{1,8,8}	3.25 ¹			3.25 ^{1,4,6} 3.75 ^{1,3}		3.25 ³	3.50 ^{2,3}		3.25 ³		3.45 ^{1,3} 4.05 ^{4,7}
Cold-rolled	4.15 ^{1,7,9} 4.85 ^{1,3}	4.30 ^{1,8} 4.50 ^{1,3}	4.30 ^{1,8}	4.15 ^{1,8}		4.15 ⁷	4.15 ^{1,4,6,8} 4.50 ^{1,8} 4.85 ^{1,3} 4.75 ^{1,9}		4.15 ³			4.15 ³		4.35 ^{1,3} 4.75 ^{4,8} 4.95 ^{4,7} 5.10 ^{1,3}
Hi str. low alloy, h.r.	4.95 ¹		4.95 ^{1,8,8}	4.95 ^{1,3}			4.95 ^{1,4} 5.20 ^{1,8} 5.30 ^{1,3}		4.95 ³	4.95 ^{2,3}		4.95 ³		5.40 ^{1,3}
Hi Str. low alloy, c.r.	6.20 ¹			6.20 ^{1,3}			6.20 ^{1,4} 6.45 ^{1,8} 6.55 ^{1,3}		6.40 ³			6.40 ³		6.40 ^{1,3}
TINPLATE† Cokes, 1.50-lb base box 1.25 lb. deduct 20¢	\$7.50 ^{1,8,9} 9.15		\$7.50 ^{1,8,8}				\$7.50 ⁴					\$7.60 ³	\$7.70 ^{2,3}	
Electrolytic 0.25, 0.50, 0.75 lb box	Deduct \$1.16, 90¢ and 65¢ respectively from 1.50-lb coke base box price													
BLACKPLATE, 26 gage Hollowware enameling	5.30 ^{1,8,13}		5.30 ^{1,8}				5.30 ⁴					5.40 ³	5.50 ^{2,3}	
BARS Carbon steel	3.45 ^{1,8,9}	3.45 ^{1,4,23}	3.45 ^{1,8,8}	3.45 ⁴	3.45 ⁴		3.45 ^{1,4,6}		3.45 ^{1,4}		3.45 ³			3.65 ^{1,3}
Reinforcing†	3.45 ^{1,8}	3.45 ⁴	3.45 ^{1,8,8}	3.45 ⁴			3.45 ^{1,4,6}		3.45 ^{1,4}		3.45 ³	3.45 ³		
Cold-finished	4.15 ^{1,4,8} 17.52-49.71	4.15 ^{1,3,3} 49.70	4.15 ^{1,7,8} 74	4.15 ^{1,3} 81	4.15 ^{1,4} 33.83		4.15 ^{1,8,49,57}		4.15 ^{7,9}					4.35 ^{1,3} 4.30 ⁴
Alloy, hot-rolled	3.95 ^{1,17}	3.95 ^{1,4,23}	3.95 ^{1,8,8}		3.95 ⁴		3.95 ^{1,8,38}	3.95 ³	3.95 ^{1,4}		3.95 ³			4.25 ^{1,3} 4.10 ^{1,1}
Alloy, cold-drawn	4.90 ^{1,17} 43.49-71	4.90 ^{1,3,3} 49.70	4.90 ^{1,7,8} 74	4.90 ^{1,3} 81	4.90 ^{1,4} 43.83		4.90 ^{1,3,3,57}	4.90 ³	4.90 ^{1,4} 70					5.05 ^{1,3}
Hi str. low alloy, h.r.	5.20 ^{1,8}		5.20 ^{1,8,8}	5.20 ⁴			5.20 ¹ 5.45 ⁴	5.20 ³	5.20 ³		5.20 ³			5.55 ^{1,3}
PLATE Carbon steel	3.50 ^{1,8}	3.50 ¹	3.50 ^{1,8,8}	3.50 ⁴			3.50 ¹ 3.75 ^{1,3}		3.50 ³	3.75 ^{2,3}	3.50 ³	3.50 ³	4.20 ^{2,3}	3.75 ^{1,3}
Floor plates	4.55 ¹	4.55	4.55 ³	4.55 ³						4.55 ^{2,3}				
Alloy	4.40 ¹	4.40 ¹	4.40 ¹				4.75 ^{1,3}			4.55 ^{2,3}	4.40	4.40 ³		
Hi Str. low alloy	5.35 ^{1,8}	5.35 ¹	5.35 ^{1,3}	5.35 ^{1,4}			5.60 ¹ 5.70 ^{1,3}			5.35 ^{2,3}	5.35 ³	5.35 ³		5.85 ^{1,3}
SHAPES, Structural	3.40 ^{1,8,9}	3.40 ^{1,23}	3.40 ^{1,8,8}					3.45 ³	3.45 ³		3.45 ³			
Hi str. low alloy	5.15 ^{1,8}	5.15 ¹	5.15 ^{1,8,8}				5.40 ¹	5.20 ³	5.20 ³		5.20 ³			
MANUFACTURERS' WIRE Bright	4.50 ^{1,8} 4.75 ^{1,3}	4.50 ^{1,4,12,34} 4.80 ^{2,3}		4.50 ^{1,3} 77			4.50 ¹	Kokomo = 4.60 ^{1,3}			4.50 ³	4.50 ³	Duluth = 4.50 ^{1,3} Pueblo = 4.75 ^{1,4}	
PILING, Steel Sheet	4.20 ^{1,8}	4.20 ¹							4.20 ³					

Smaller numbers indicate producing companies. See key at right.
Prices are in cents per lb unless otherwise noted. Extras apply.

				IRON AGE
				STEEL PRICES
Kansas City	Houston	Birm- ingham	WEST COAST Seattle, San Francisco, Los Angeles, Fontana	
			F=\$76.00	INGOTS Carbon forging, net ton
	\$89.00 ¹¹		F=\$77.00	Alloy, net ton
		\$53.00 ¹¹	F=\$72.00 ¹⁹	BILLETS, BLOOMS, SLABS Carbon, rerolling, net ton
	\$71.00 ¹¹	\$63.00 ¹¹	F=\$82.00 ¹⁹	Carbon forging billets, net ton
	\$74.00 ¹¹		F=\$88.00 ¹⁹	Alloy net ton
				PIPE SKELP
	4.25 ¹¹	3.85 ¹¹	SF=4.50 ¹⁴ LA=4.65 ^{14, 15}	WIRE RODS
		3.35 ¹¹	SF, LA=4.05 ¹⁴ F=4.25 ¹⁹	SHEETS Hot-rolled (18 ga. & hvr.)
		4.10 ¹¹	SF=5.05 ¹⁴ F=5.00 ¹⁹	Cold-rolled
		4.40 ¹¹	SF, LA=5.15 ¹⁴	Galvanized (10 gage)
		4.40 ¹¹		Enameling (12 gage)
				Long ternes (10 gage)
		5.05 ¹¹	F=6.00 ¹⁹	Hi str. low alloy, h.r.
			F=7.05 ¹⁹	Hi str. low alloy, c.r.
				Hi str. low alloy, galv.
3.85 ¹¹	3.85 ¹¹	3.25 ¹¹	SF, LA=4.00 ^{14, 15} F=4.40 ¹⁹ , S=4.25 ¹⁹	STRIP Hot-rolled
			Ashland=3.25 ¹⁷ Atlanta=3.80 ¹⁸ New Britain=3.75 ¹⁸ Minnequa=4.30 ¹⁴	Cold-rolled
			F=5.75 ¹⁹ LA=5.85 ¹⁷	Hi str. low alloy, h.r.
		4.95 ¹¹	New Haven=4.85 ¹⁷ , 5.00 ¹⁸ Trenton=5.00 ¹⁸ New Britain=4.85 ¹⁸	Hi str. low alloy, c.r.
			F=5.95 ¹⁹	TINPLATE Coke, 1.50-lb base box 1.25 lb, deduct 20¢
		7.60 ¹¹	SF=8.25 ¹⁴	Electrolytic 0.25, 0.50, 0.75 lb box
Deduct \$1.15, 90¢ and 65¢ respectively from 1.50-lb coke base box price				BLACKPLATE, 29 gage Hollowware enameling
4.00 ¹¹	3.85 ¹¹	3.45 ¹¹	SF, LA=4.15 ¹⁴ LA=4.15 ¹⁴	BARS Carbon steel
4.00 ¹¹	3.85 ¹¹	3.45 ¹¹	SF, S=4.20 ¹⁹ F=4.10 ¹⁹	Reinforcing†
			Atlanta=4.00 ¹⁸ Minnequa=4.25 ¹⁴	Cold-finished
			Putnam, Newark=4.55 ¹⁹	Alloy, hot-rolled
4.00 ¹¹	4.35 ¹¹		LA=5.00 ¹⁹ F=4.95 ¹⁹	Alloy-, cold-drawn
			Newark ¹⁹ , Worcester ¹⁹ =5.20 Hartford=5.20 ¹⁴	Hi str. low alloy, h.r.
		5.20 ¹¹	F=6.25 ¹⁹	PLATE Carbon steel
	3.90 ¹¹	3.50 ¹¹	F=4.10 ¹⁹ S=4.40 ¹⁹ Geneva=3.50 ¹⁴	Floor plates
			Claymont=3.90 ¹⁹ Coatesville=3.90 ¹⁹ Harrisburg=4.25 ¹⁴	Alloy
			Harrisburg=5.25 ¹⁴	Hi str. low alloy
			F=5.40 ¹⁹ Coatesville=4.90 ¹⁹	SHAPES, Structural
		5.35 ¹¹	F=5.95 ¹⁹	Hi str. low alloy
4.00 ¹¹	3.80 ¹¹	3.40 ¹¹	SF=3.95 ¹⁹ LA=4.00 ^{14, 15}	
		5.15 ¹¹	F=4.00 ¹⁹ S=4.05 ¹⁹	
5.15 ¹¹	4.90 ¹¹	4.50 ¹¹	SF, LA=5.45 ^{14, 15, 16}	MANUFACTURERS' WIRE Bright
			Phoenixville=4.25 ¹⁴ Gen'a=3.40 ¹⁶ Minnequa=3.85 ¹⁴	
			Fontana=5.75 ¹⁹ Geneva=5.15 ¹⁹	
			Portsmouth=4.50 ¹⁹ Worcester=4.80 ¹⁹	

Notes: †Special coated mfg ternes deduct \$1.15 from 1.50-lb coke base box price.
Can-making quality blackplate, 55 to 128-lb, deduct \$1.90 from 1.50-lb coke base box.
‡Straight lengths only from producer to fabricator.

KEY TO STEEL PRODUCERS

With Principal Offices

- Carnegie-Illinois Steel Corp., Pittsburgh
- American Steel & Wire Co., Cleveland
- Bethlehem Steel Co., Bethlehem
- Republic Steel Corp., Cleveland
- Jones & Laughlin Steel Corp., Pittsburgh
- Youngstown Sheet & Tube Co., Youngstown
- Armco Steel Corp., Middletown, Ohio
- Inland Steel Co., Chicago
- Weirton Steel Co., Weirton, W. Va.
- National Tube Co., Pittsburgh
- Tennessee Coal, Iron & R. R. Co., Birmingham
- Great Lakes Steel Corp., Detroit
- Sharon Steel Corp., Sharon, Pa.
- Colorado Fuel & Iron Corp., Denver
- Wheeling Steel Corp., Wheeling, W. Va.
- Geneva Steel Co., Salt Lake City
- Crucible Steel Co. of America, New York
- Pittsburgh Steel Co., Pittsburgh
- Kaiser Steel Corp., Oakland, Calif.
- Portsmouth Div., Detroit Steel Corp., Detroit
- Lukens Steel Co., Coatesville, Pa.
- Granite City Steel Co., Granite City, Ill.
- Wisconsin Steel Co., South Chicago, Ill.
- Columbia Steel Co., San Francisco
- Copperweld Steel Co., Glassport, Pa.
- Alan Wood Steel Co., Conshohocken, Pa.
- Calif. Cold Rolled Steel Corp., Los Angeles
- Allegheny Ludlum Steel Corp., Pittsburgh
- Worth Steel Co., Claymont, Del.
- Continental Steel Corp., Kokomo, Ind.
- Rotary Electric Steel Co., Detroit
- Laclede Steel Co., St. Louis
- Northwestern Steel & Wire Co., Sterling, Ill.
- Keystone Steel & Wire Co., Peoria, Ill.
- Central Iron & Steel Co., Harrisburg, Pa.
- Carpenter Steel Co., Reading, Pa.
- Eastern Stainless Steel Corp., Baltimore
- Washington Steel Corp., Washington, Pa.
- Jessop Steel Co., Washington, Pa.
- Blair Strip Steel Co., New Castle, Pa.
- Superior Steel Corp., Carnegie, Pa.
- Timken Steel & Tube Div., Canton, Ohio*
- Babcock & Wilcox Tube Co., Beaver Falls, Pa.
- Reeves Steel & Mfg. Co., Dover, Ohio
- John A. Roebling's Sons Co., Trenton, N. J.
- Simonds Saw & Steel Co., Fitchburg, Mass.
- McLouth Steel Corp., Detroit
- Cold Metal Products Co., Youngstown
- Thomas Steel Co., Warren, Ohio
- Wilson Steel & Wire Co., Chicago
- Sweet's Steel Co., Williamsport, Pa.
- Superior Drawn Steel Co., Monaca, Pa.
- Tremont Nail Co., Wareham, Mass.
- Firth Sterling Steel & Carbide Corp., McKeesport, Pa.
- Ingersoll Steel Div., Chicago
- Phoenix Iron & Steel Co., Phoenixville, Pa.
- Fitzsimmons Steel Co., Youngstown
- Stanley Works, New Britain, Conn.
- Universal-Cyclops Steel Corp., Bridgeville, Pa.
- American Cladmetals Co., Carnegie, Pa.
- Cuyahoga Steel & Wire Co., Cleveland
- Bethlehem Pacific Coast Steel Corp., San Francisco
- Follansbee Steel Corp., Pittsburgh
- Niles Rolling Mill Co., Niles, Ohio
- Atlantic Steel Co., Atlanta
- Acme Steel Co., Chicago
- Joslyn Mfg. & Supply Co., Chicago
- Detroit Steel Corp., Detroit
- Wyckoff Steel Co., Pittsburgh
- Bliss & Laughlin, Inc., Harvey, Ill.
- Columbia Steel & Shifting Co., Pittsburgh
- Cumberland Steel Co., Cumberland, Md.
- La Salle Steel Co., Chicago
- Monarch Steel Co., Inc., Hammond, Ind.
- Empire Steel Co., Mansfield, Ohio
- Mahoning Valley Steel Co., Niles, Ohio
- Oliver Iron & Steel Co., Pittsburgh
- Pittsburgh Screw & Bolt Co., Pittsburgh
- Standard Forging Corp., Chicago
- Driver Harris Co., Harrison, N. J.
- Detroit Tube & Steel Div., Detroit
- Reliance Div., Eaton Mfg. Co., Massillon, Ohio
- Sheffield Steel Corp., Kansas City
- Plymouth Steel Co., Detroit

*Add 10 pct to quoted prices

STAINLESS STEELS

Base prices, in cents per pound.
f.o.b. producing point

Product	301	302	303	304	316	321	347	410	416	430
Ingot, re-rolling	13.75	14.50	16.00	15.50	23.75	19.25	21.00	12.25	14.25	12.50
Slabs, billets, re-rolling	18.00	19.25	21.25	20.25	31.25	25.50	27.75	16.60	19.50	18.25
Forg. discs, die blocks, rings	32.00	32.00	34.50	33.50	50.50	38.00	42.50	26.00	26.50	26.50
Billets, forging	25.75	25.75	27.75	27.00	40.50	30.50	34.25	21.00	21.50	21.50
Bars, wire, structurals	30.00	30.00	32.50	31.50	47.50	35.50	40.00	24.50	25.00	25.00
Plates	32.00	32.00	34.00	34.00	50.50	39.50	44.00	26.00	26.50	26.50
Sheets	39.00	39.00	41.00	41.00	64.50	47.00	51.50	34.50	35.00	37.00
Strip, hot-rolled	25.50	27.00	31.25	29.00	47.25	35.75	40.00	22.50	29.25	23.00
Strip, cold-rolled	32.00	34.50	38.00	36.50	56.50	46.00	50.00	28.50	35.00	29.00

STAINLESS STEEL PRODUCING POINTS—*Sheets*: Midland, Pa., 17; Brackenridge, Pa., 28; Butler, Pa., 7; McKeesport, Pa., 1; Washington, Pa., 38, 39; Baltimore, 37; Middletown, Ohio, 7; Massillon, Ohio, 4; Gary, 1; Bridgeville, Pa., 59; New Castle, Ind., 55; Ft. Wayne, Ind., 67; Lockport, N. Y., 46.

Strip: Midland, Pa., 17; Cleveland, 2; Carnegie, Pa., 41; McKeesport, Pa., 54; Reading, Pa., 36; Washington, Pa., 38; W. Leechburg, Pa., 28; Bridgeville, Pa., 59; Detroit, 47; Massillon, Canton, Ohio, 4; Middletown, Ohio, 7; Harrison, N. J., 80; Youngstown, 48; Lockport, N. Y., 46; New Britain, Conn., 58; Sharon, 13; Butler, Pa., 7.

Bars: Baltimore, 7; Duquesne, Pa., 1; Munhall, Pa., 1; Reading, Pa., 36; Titusville, Pa., 59; Washington, Pa., 39; McKeesport, Pa., 1, 54; Bridgeville, Pa., 59; Dunkirk, N. Y., 28; Massillon, Ohio, 4; Chicago, 1; Syracuse, N. Y., 17; Watervliet, N. Y., 28; Waukegan, Ill., 2; Lockport, N. Y., 46; Canton, Ohio, 42; *Ft. Worth, Ind., 67.

Wire: Waukegan, Ill., 2; Massillon, Ohio, 4; McKeesport, Pa., 54; Bridgeport, Conn., 44; Ft. Wayne, Ind., 67; Trenton, N. J., 45; Harrison, N. J., 80; Baltimore, 7; Dunkirk, 28.

Structurals: Baltimore, 7; Massillon, Ohio, 4; Chicago, 1, 67; Watervliet, N. Y., 28; Bridgeport, Conn., 44.

Plates: Brackenridge, Pa., 28; Butler, Pa., 7; Chicago, 1; Munhall, Pa., 1; Midland, Pa., 17; New Castle, Ind., 55; Lockport, N. Y., 46; Middletown, 7; Washington, Pa., 39; Cleveland, Massillon, 4.

Forged discs, die blocks, rings: Pittsburgh, 1, 17; Syracuse, 17; Ferndale, Mich., 28.

Forging billets: Midland, Pa., 17; Baltimore, 7; Washington, Pa., 39; McKeesport, 54; Massillon, Canton, Ohio, 4; Watervliet, 28; Pittsburgh, Chicago, 1.

* Add 10 pct to quoted prices.

ELECTRICAL SHEETS

22 gage, HR cut lengths, f.o.b. mill

	Cents per lb
Armature	\$6.20
Electrical	\$6.70
Motor	\$7.95
Dynamo	8.75
Transformer 72	9.30
Transformer 65	9.85
Transformer 58	10.55
Transformer 52	11.35

PRODUCING POINTS—Beech Bottom, W. Va., 15; Brackenridge, Pa., 28; Follinsbee, W. Va., 63; Granite City, Ill., 22*; add 70¢; Indiana Harbor, Ind., 8; Mansfield, Ohio, 75; Niles, Ohio, 64, add 30¢; Vandergrift, Pa., 1; Warren, Ohio, 4; Zanesville, Ohio, 7.

MERCHANT WIRE PRODUCTS

	Base Column Pittsburg	Calif.
Std. & coated nails***	106	125¢
Woven wire fence***	116	139
Fence posts, carload***	116	...
Single loop bale ties	113	137
Gal. barbed wire***	126	146
Twisted barbed wire	126	146

* Pgh., Chi., Duluth; Worcester, 6 columns higher; Houston, 8 columns higher; Kansas City, 12 columns higher; 15½ gage and heavier. **Allquippa 4 col. higher. ††Duluth, Joliet, Johnstown, 112. ‡Sterling, Ill., 6 columns higher; ††Sterling, Ill., 2 columns higher.

	Base per 100 lb	Pittsburg	Calif.
Merch. wire annid.†††	\$5.35		\$6.30
Merch. wire galv.†	5.60		6.55
Cut nails, carload††	6.75		

†Add 30¢ at Worcester; 20¢ at Chicago; 10¢ at Sparrows Pt. ††Less 20¢ to jobbers. ‡Torrance 126. §§Allquippa add 20¢.

PRODUCING POINTS—*Standard, Coated or galvanized nails, woven wire fence, bale ties, and barbed wire*: Alabama City, Ala., 4; Atlanta, 65; Allquippa, Pa., (except bale ties), 5; Bartonville, Ill. (except bale ties), 34; Chicago, 4; Donora, Pa., 2; Duluth, 2; Fairfield, Ala., 11; Johnstown, Pa. (except bale ties), 3; Joliet, Ill., 2; Kokomo, Ind., 30;

Minnequa, Colo., 14; Monessen, Pa. (except bale ties), 18; Pittsburgh, Calif., 24; Portsmouth, Ohio, 20; Rankin, Pa., (except bale ties), 2; Sparrows Point (except woven fence), 3; Sterling, Ill., 33; San Francisco (except nails and woven fence), 14; Torrance, Calif. (nails only), 24; Worcester (nails only), 2; Houston (except bale ties), 83; Kansas City, 83.

Fence Posts: Duluth, 2; Johnstown, Pa., 3; Joliet, Ill., 2; Minnequa, Colo., 14; Moline, Ill., 4; Williamsport, Pa., 51.

Cut nails: Wheeling, W. Va., 15; Conshohocken, Pa., 26; Warehame, Mass., 53.

RAILS, TRACK SUPPLIES

F.o.b. mill

Standard rails, 100 lb and heavier,	
No. 1 quality, per 100 lb	\$3.40
Joint bars, per 100 lb	4.40
Light rails, per 100 lb	3.75

	Base Price cents per lb
Track spikes†	5.60
Axles	6.25
Screw spikes	5.60
Tie plates	4.20
Pittsburg, Torr., Calif.; Seattle	4.35
Track bolts, untreated	8.85
Track bolts, heat treated, to railroads	9.10

†Kansas City, 5.85¢.

PRODUCING POINTS—*Standard rails*: Bessemer, Pa., 1; Ensley, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Minnequa, Colo., 14; Steelton, 3.

Light rails: All the above except Indiana Harbor and Steelton, plus Fairfield, Ala., 11; Johnstown, 3; Minnequa, 14.

Joint bars: Bessemer, Pa., 1; Fairfield, Ala., 11; Indiana Harbor, Ind., 8; Joliet, Ill., 1; Lackawanna, N. Y., 3; Steelton, Pa., 3; Minnequa, Colo., 14.

Track spikes: Indiana Harbor, Ind., 6; 8; Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 5; Chicago, 4; Struthers, 6; Youngstown, 4.

Track bolts: Lebanon, Pa., 3; Minnequa, Colo., 14; Pittsburgh, 7, 78.

Axles: Indiana Harbor, Ind., 79; Johnstown, Pa., 3.

Tie plates: Fairfield, Ala., 11; Gary, 1; Indiana Harbor, Ind., 8; Lackawanna, N. Y., 3; Pittsburgh, Calif., 24; Seattle, 62; Steelton, Pa., 3; Torrance, Calif., 24; Minnequa, Colo., 14.

Numbers after producing points
correspond to steel producers.
See key on Steel Price page.

PIPE AND TUBING

Base discounts, f.o.b. mills
Base price about \$200.00 per net ton

Standard, T & C

Steel, Butt weld*

	Black	Galv.
½-in.	40½ to 38½	21 to 18½
¾-in.	43½ to 41½	25 to 21½
1-in.	46 to 44	28 to 22
1¼-in.	46½ to 44½	28½ to 23
1½-in.	47 to 45	29 to 23½
2-in.	47½ to 45½	29½ to 24
2½ to 3-in.	48 to 46	30 to 27

Steel, Lap weld

2-in.	38	16½
2½ to 3-in.	42	21
3½ to 6-in.	43 to 40	22 to 21½

Steel, seamless

2-in.	36	17½ to 14½
2½ to 3-in.	39	20½ to 18
3½ to 6-in.	41	22½ to 20

Wrought iron, butt weld

½-in.	+26½	+56½
¾-in.	+16½	+47½
1 & 1¼-in.	+10½	+38½
1½-in.	+4½	+35
2-in.	+4	+34½

Wrought iron, lap weld

2-in.	+13½	+42½
2½ to 3½-in.	+11	+38
4-in.	+6	+32
4½ to 8-in.	+8	+33½
9 to 12-in.	+18	+42

Extra Strong, Plain Ends

Steel, butt weld

½-in.	39½ to 37½	21½ to 17½
¾-in.	43½ to 41½	25½ to 21½
1-in.	46½ to 43½	28½ to 23½
1¼-in.	46 to 44	29 to 24½
1½-in.	46½ to 44½	29½ to 25
2-in.	47 to 45	30 to 25½
2½ to 3-in.	47½ to 45½	30½ to 27½

Steel, lap weld

2-in.	37	15½
2½ to 3-in.	42	21
3½ to 6-in.	44½ to 41½	23½ to 24

Steel, seamless

2-in.	35	17½ to 14½
2½ to 3-in.	38	21½ to 18
3½ to 6-in.	42½	25 to 20

Wrought iron, butt weld

½-in.	+22	+52½
¾-in.	+15½	+45½
1 to 2-in.	+5½	+34½

Wrought iron, lap weld

2-in.	+10½	+39
2½ to 4-in.	+1	+27½
4½ to 6-in.	+6	+22
7 & 8-in.	list	+27
9 to 12-in.	+11½	+35

Threads only, butt, lap weld and seamless pipe, 1 pt higher disc. (lower price). Plain ends, butt, lap weld and seamless, 3 in. & under, 3 pts higher disc. Lap weld, seamless, 3½ in. & over, 4 pt higher disc. Butt weld & lap weld steel pipe, jobbers disc. 5 pct. *Fontana, Calif., deduct 11 pts from left col.; galv., deduct 14 to 13 pts. Bethlehem, Youngstown, add average \$3.80 per ton on galv. Republic Steel, galv., add \$5 per ton for ½ to ¾ in.; \$4 per ton for 1 to 1½ in.; \$3 per ton for 1½ to 12 in.

BOILER TUBES

Seamless steel, electric welded commercial boiler tubes, locomotive tubes, minimum wall, per 100 ft at mill, c.l. lots, cut lengths 10 to 24 ft.

OD	gag	Seamless	Electric	Weld		
in.	in.	BWG	H.R.	C.R.	H.R.	C.R.
2	13	\$20.61	\$24.24	\$19.99	23.51	
2½	12	27.71	32.58	26.88	31.60	
3	12	30.82	36.27	29.90	35.18	
3½	11	38.52	45.35	37.36	43.99	
4	10	47.82	56.25	46.39	54.56	

Pittsburgh Steel add, H-R: 2 in., 62¢;
2½ in., 84¢; 3 in., 92¢; 3½ in., 1.17; 4 in., 1.45. Add, C-R: 2 in., 74¢; 2½ in., 99¢; 3 in., \$1.10; 3½ in., \$1.37; 4 in., \$1.70.

Pittsburgh Steel add, H-R: 3 in., 62¢; 2½ in., 84¢; 3 in., 92¢; 3½ in., \$1.17; 4 in., \$1.45. Add, C-R: 2 in., 74¢; 2½ in., 99¢; 3 in., \$1.10; 3½ in., \$1.37; 4 in., \$1.70.

WAREHOUSE PRICES

Base prices, f.o.b. warehouse, dollars per 100 lb. (Metropolitan area delivery, add 20¢ to base price except Birmingham, San Francisco, Cincinnati, New Orleans, St. Paul (*), add 15¢; Philadelphia, add 25¢; Chicago, add 30¢).

CITIES	SHEETS			STRIP		PLATES	SHAPES	BARS		ALLOY BARS			
	Hot-Rolled	Cold-Rolled (16 gage)	Galvanized (10 gage)	Hot-Rolled	Cold-Rolled		Standard Structural	Hot-Rolled	Cold-Finished	Hot-Rolled, A 4818 As-rolled	Hot-Rolled, A 4148 Ann.	Cold-Drawn, A 4818 As-rolled	Cold-Drawn, A 4148 Ann.
Baltimore	5.15	6.30 ¹	6.55 ²	5.99	....	5.40-6.04 ¹¹	5.69	5.59	6.19	9.69	9.99	11.12	11.49
Birmingham	5.15 ¹⁰	5.95	6.15 ⁷	5.10	....	5.55	5.25	5.10	6.69	....	....	....	....
Boston	5.75	6.55 ²⁰	6.94 ⁸	5.70	6.90-7.14	6.08	5.75	5.60	6.19	9.70	8.50	11.15	11.45
Buffalo	5.15	5.95	6.04	5.41	7.27	5.60	5.35	5.15	5.75	9.60	9.90	11.05	11.35
Chicago	5.15	6.20	6.95	6.10	6.30	5.40	5.25	5.10	5.60	9.25	9.55	10.70	11.00
Cincinnati	5.42-5.97	5.99-6.24	6.39	5.35	....	5.79	5.54	5.35-5.54	5.96-6.25	9.60	9.90	11.05	11.35
Cleveland	5.15	5.95	7.00-7.10	5.24	6.38	5.52	5.37	5.12	5.75	9.39	9.69	10.81	11.11
Detroit	5.33	6.09-6.33	7.09	5.49	6.43-6.80	5.59	5.64-5.79	5.39	5.91	9.59	9.89	11.01	11.31
Houston	6.09	....	....	6.10	....	6.00	5.95	6.10	7.80	10.35-10.45	10.50-10.60	11.50	11.95
Indianapolis	....	....	....	....	7.38	....	....	....	6.15	....	....	....	....
Kansas City	5.75	6.55 ²⁰	7.55	5.70	6.95	6.00	5.85	5.70	6.35	9.65	10.15	11.30	11.60
Los Angeles	5.90	7.45	7.70 ²	5.95	8.70 ¹⁰	6.00	5.90	5.90	7.65	10.75	10.75	12.45	12.75
Memphis	5.93	6.69	....	5.98	6.80-8.51	6.08	5.93	5.89	6.51	....	....	....	....
Milwaukee	5.29	6.09	6.94-6.99	5.24	6.32	5.54	5.39	5.24	5.69	9.39	9.69	10.94	11.14
New Orleans	5.50 ¹	6.75-6.85 ¹	....	5.55 ¹	6.80-6.90 ¹	5.55	5.55 ¹	5.55 ¹	6.75-6.80	....	....	....	....
New York	5.52	6.64	7.54 ²	5.54	6.78	5.58	5.58	5.57	6.44	9.60	9.90	11.05	11.35
Norfolk	6.10 ¹³	7.00	....	6.30 ¹³	....	6.15 ¹³	6.20 ¹³	6.15 ¹³	7.20 ¹³	....	....	....	....
Philadelphia	6.05	6.20-6.35	6.85 ¹	5.65	6.29	5.65	5.45	5.60	6.21	9.35	9.65	10.80	11.10
Pittsburgh	5.15	5.95	6.60	5.20	5.95-6.00	5.35	5.25	5.10	5.75	9.25	9.55	10.70	11.00
Portland	6.60-7.10 ¹	6.40 ²	....	6.85 ⁵	....	6.40 ⁹	6.50	6.45-6.45 ⁹	8.60 ¹⁴	12.00 ¹⁸	11.80 ¹⁸	....	....
Salt Lake City	5.85	6.70	....	7.45	6.75	6.10 ³	5.90	7.35 ⁹	8.75	....	....	....	....
San Francisco	6.20	7.50 ¹	7.75 ²	6.15	7.85 ¹⁰	6.10	6.00	6.00	7.55	10.75	10.75	12.45	12.75
Seattle	6.60 ⁴	8.15 ²	8.40 ³	6.85 ⁴	....	6.35 ⁴	6.20 ⁴	6.35 ⁴	8.80 ¹⁴	....	11.80 ¹⁸	....	13.60 ¹⁸
St. Louis	5.48	6.20	7.19	5.43	7.30	5.73	5.58	5.43	6.08	9.58	9.88	11.03	11.33
St. Paul	5.71	6.51	7.41	5.68	6.16-6.52	5.98	5.81	5.68	6.31	9.81	10.11	11.28	11.58

BASE QUANTITIES (Standard unless otherwise keyed on prices.)
Hot-rolled sheets and strip, hot rolled bars and bar shapes, structural shapes, plate, galvanized sheets and cold-rolled sheets; 2000 to 9999 lb. Cold-finished bars; 2000 lb or over. Alloy bars; 1000 to 1999 lb.

All HR products may be combined to determine quantity bracket. All galvanized sheets may be combined to determine quantity bracket. CR sheets may not be combined with each other or with galv. sheets to determine quantity bracket.

Exceptions:

(1) 400 to 1499 lb; (2) 450 to 1499 lb; (3) 300 to 4999 lb; (4) 300 to 9999 lb; (5) 2000 to 9999 lb; (6) 1000 lb and over; (7) 500 to 1499 lb; (8) 400 lb and over; (9) 400 to 9999 lb; (10) 500 to 9999 lb; (11) 400 to 3999 lb; (12) 450 to 3749 lb; (13) 400 to 1999 lb; (14) 1500 lb and over; (15) 1000 to 9999 lb; (16) 6000 lb and over; (17) up to 1999 lb; (18) 1000 to 4999 lb; (19) 1500 to 3499 lb; (20) CR sheets may be combined for quantity; (21) 3 to 24 bundles.

PIG IRON PRICES

Dollars per gross ton. Delivered prices do not include 3 pct tax on freight.

PRODUCING POINT PRICES						DELIVERED PRICES (BASE GRADES)							
Producing Point	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.	Consuming Point	Producing Point	Rail Freight Rate	Basic	No. 2 Foundry	Malleable	Bessemer	Low Phos.
Bethlehem	51.00	51.50	52.00	52.50		Boston	Everett	\$60-.80		52.85-53.05	53.55-53.75		
Birmingham	45.38	45.88				Boston	Steelton	6.00		52.79	53.29	53.79	60.96
Buffalo	49.00	49.50	50.00			Brooklyn	Bethlehem	4.29		52.58			
Chicago	49.00	49.50	49.50	50.00	54.00	Cincinnati	Birmingham	6.70	52.08	51.13	51.63	52.13	
Cleveland	49.00	49.50	49.50	50.00		Jersey City	Bethlehem	2.63		51.13	51.63	52.13	
Davenport, Tex.	45.00	45.50	45.50			Los Angeles	Geneva-Ironton	7.70	53.70	54.20			
Duluth	49.00	49.50	49.50	50.00		Los Angeles	Fontana	7.70	56.70	57.20			
Erie	49.00	49.50	49.50	50.00		Mansfield	Cleveland-Toledo	3.33	49.33	49.83	49.83	50.33	54.39
Everett		52.25	52.75			Philadelphia	Bethlehem	2.39	53.39	53.89	54.39	54.89	
Fontana	55.00	55.50				Philadelphia	Swedeland	1.44	51.44	51.94	52.44	52.94	
Granite City	50.90	51.40	51.90			Philadelphia	Steelton	3.09	54.09	54.59	55.09	55.59	60.09
Ironton, Utah	46.00	46.50				Rochester	Buffalo	2.63	51.63	52.13	52.63		
Pittsburgh	46.00			47.00		San Francisco	Geneva-Ironton	7.70	53.70	54.20			
Neville Island	49.00	49.50	49.50	50.00		San Francisco	Fontana	7.70	6.70	57.20			
Geneva, Utah	46.00	46.50				Seattle	Geneva-Ironton	7.70	53.70	54.20			
Sharpsville	49.00	49.50	49.50	50.00		Seattle	Fontana	7.70	56.70	57.20			
Steelton	51.00	51.50	52.00	52.50	57.00	St. Louis	Granite City	0.75 Arb	48.65	49.15	49.65		
Swedeland	50.00	50.50	51.00	51.50		Syracuse	Buffalo	3.58	52.58	53.08	53.58		
Toledo	49.00	49.50	49.50	50.00									
Troy, N. Y.	51.00	51.50	52.00		57.00								
Youngstown	49.00	49.50	49.50	50.00									

* Monessen, \$51.00.
Producing point prices are subject to switching charges; silicon differential (not to exceed 50¢ per ton for each 0.25 pct silicon content in excess of base grade which is 1.75 to 2.25 pct for foundry iron); phosphorus differentials, a reduction of 38¢ per ton for phosphorus content of 0.70 pct and over; manganese differentials, a charge not to exceed 50¢

per ton for each 0.50 pct manganese content in excess of 1.00 pct. \$2 per ton extra may be charged for 0.5 to 0.75 pct nickel content and \$1 per ton extra for each additional 0.25 pct nickel.
Silvery iron (blast furnace) silicon 6.01 to 6.50 pct C/L per g.t., f.o.b. Jackson, Ohio—\$59.50; f.o.b. Buffalo, \$58.25. Add \$1.50 per ton for each additional 0.50 pct Si up to 17 pct.

Add 50¢ per ton for each 0.50 pct Mn over 1.00 pct. Add \$1.00 per ton for 0.75 pct or more P. Bessemer ferro-silicon prices are \$1.00 per ton above silvery iron prices of comparable analysis.

Charcoal pig iron base price for low phosphorus \$62.00 per gross ton, f.o.b. Lyle, Tenn. Delivered Chicago, \$70.50. High phosphorus charcoal pig iron is not being produced.

SHARONSTEEL

"NO TRICK TO IT,
IF YOU USE BRAINARD
STEEL TUBING"!



These India lads would probably never use steel tubing to perform their famous trick, but if they did they wouldn't be able to find a better tubing than Brainard high quality welded mechanical steel tubing.

As manufacturers who now use Brainard tubing know, they need no tricks to bend, form, swage or otherwise fabricate—for Brainard tubing is quality controlled from ore to product to assure a more uniform, easier-working tube at lower costs.

Next time you need tubing or fabricated tube parts check with the Brainard office nearest you.

QUALITY CONTROLLED FROM
ORE TO PRODUCT BY BRAINARD
Straight or Fabricated
SIZES: 1/2" to 4" — .025 to .165

TUBING DIVISION BRAINARD STEEL COMPANY

23011 LARCHMONT AVENUE WARREN, OHIO

There are Brainard sales offices in Atlanta, New York, Cincinnati, Pittsburgh, Buffalo, Chicago, Philadelphia, Detroit, Cleveland, Indianapolis and Nashua, N. H. Sales Representatives: Sharonsteel Products Co. in Detroit, Grand Rapids, Mich.; and Farrell, Pa. Fred J. Reynolds, Davenport, Ia; Brass & Copper Sales Co., St. Louis, Mo.

IRON AGE MARKETS & PRICES FOUNDED 1855

BOLTS, NUTS, RIVETS, SCREWS

Consumer Prices

(Bolts and nuts, f.o.b. mill, Pittsburgh, Cleveland, Birmingham or Chicago)
Base discount

Machine and Carriage Bolts

	Pot Off List	Less Case C.
1/2 in. & smaller x 6 in. & shorter	23 35	
9/16 in. & 5/8 in. x 6 in. & shorter	26 37	
3/4 in. & larger x 6 in. & shorter	26 37	
All diam. longer than 6 in.	22 34	
Lag, all diam. x 6 in. & shorter	30 41	
Lag, all diam. longer than 6 in.	28 39	
Flow bolts	40 —	

Nuts, Hot Pressed, Cold Punched—Sq

	Pot Off List	Less Keg K.	Less Keg K. (Hvy)
1/2 in. & smaller	23 35	23 35	
9/16 in. & 5/8 in.	20 32	15 28	
3/4 in. to 1 1/2 in. inclusive	23 35	10 24	
1 1/2 in. & larger	16 29	10 24	

Nuts, Hot Pressed—Hexagon

1/2 in. & smaller	33 43	29 40
9/16 in. & 5/8 in.	24 36	15 28
3/4 in. to 1 1/2 in. inclusive	20 32	11 25
1 1/2 in. & larger	17 30	11 25

Nuts, Cold Punched—Hexagon

1/2 in. & smaller	33 43	29 40
9/16 in. & 5/8 in.	30 41	25 37
3/4 in. to 1 1/2 in. inclusive	27 38	20 32
1 1/2 in. & larger	20 32	15 28

Nuts, Semi-Finished—Hexagon

	Reg	Hvy
1/2 in. & smaller	41 50	25 45
9/16 in. & 5/8 in.	36 46	29 40
3/4 in. to 1 1/2 in. inclusive	31 42	23 35
1 1/2 in. & larger	21 33	17 30

Light
7/16 in. & smaller 41 50
3/4 in. thru 1 1/2 in. 35 45
3/4 in. to 1 1/2 in. inclusive 33 43
Broken case or keg add 15 pct.

Stove Bolts

	Pot Off List
Packaged, steel, plain finished	56—10
Packaged, plated finish	41—10
Bulk, plain finish**	67*

*Discounts apply to bulk shipments in not less than 15,000 pieces of a size and kind where length is 3-in. and shorter; 5000 pieces for lengths longer than 3-in. For lesser quantities, packaged price applies.

**Zinc, Parkerized, cadmium or nickel plated finishes add 6¢ per lb net. For black oil finish, add 2¢ per lb net.

Rivets

	Base per 100 lb
1/2 in. & larger	\$7.25

Pot Off List
7/16 in. & smaller 43
F.o.b. Pittsburgh, Cleveland, Chicago, Birmingham, Lebanon, Pa.

Cap and Set Screws

	Pot Off List
(In bulk)	
Hexagon head cap screws, coarse or fine thread, 1/4 in. thru 3/4 in. x 6 in., SAE 1020, bright	58
3/4 in. thru 1 in. up to & including 6 in.	52
3/4 in. thru 1 in. x 6 in. & shorter	61
high C double heat treat	46
3/4 in. thru 1 in. up to & including 6 in.	23
Milled studs	24
Flat head cap screws, listed sizes	43
Fillister head cap, listed sizes	57
Set screws, sq head, cup point, 1 in. diam. and smaller x 6 in. & shorter	

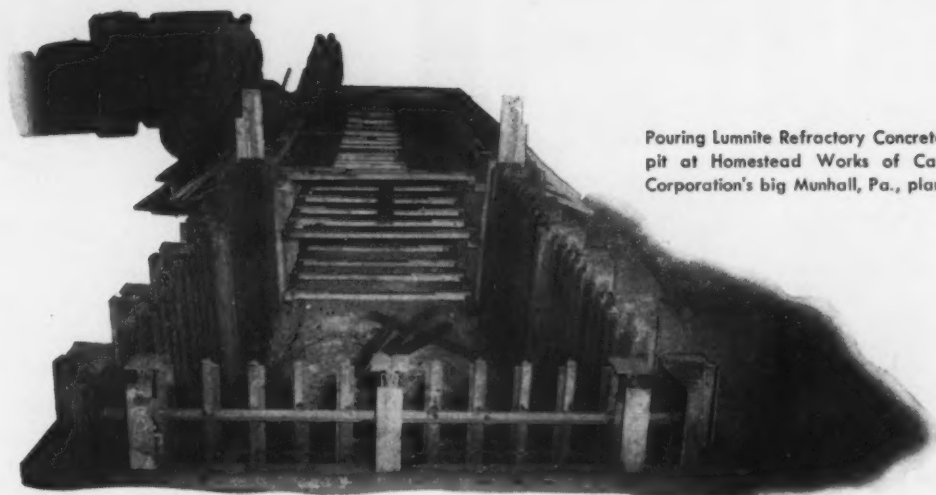
LAKE SUPERIOR ORES

(51.50% Fe; natural content, delivered lower lake ports)

	Per gross ton
Old range, bessemer	\$8.10
Old range, nonbessemer	7.95
Mesabi, bessemer	7.85
Mesabi, nonbessemer	7.70
High phosphorus	7.70

After Jan. 25, 1950, increases or decreases in Upper Lake rail freight, dock handling charges and taxes are for buyers' account.

Place Refractories **FASTER** with Lumnite* Refractory Concrete



Pouring Lumnite Refractory Concrete for a slow-cooling pit at Homestead Works of Carnegie-Illinois Steel Corporation's big Munhall, Pa., plant.

YOUR REFRACTORY JOBS get into production in *hours*, instead of days, by using Lumnite Refractory Concrete!

Why? Because simple monolithic construction replaces thousands of small units. Walls aren't laid up. They're poured! Moreover, Lumnite reaches service strength in 24 hours, or less. If needed, repairs and maintenance can be made quickly and easily with a minimum of outage time. For Refractory *Insulating* Concrete, simply change the aggregate, at no extra cost!

Lumnite calcium-aluminate cement has a proved time- and cost-saving record — not only for slow-cooling pits, but for many types of oven and furnace walls, door linings, arches, car tops, floors and

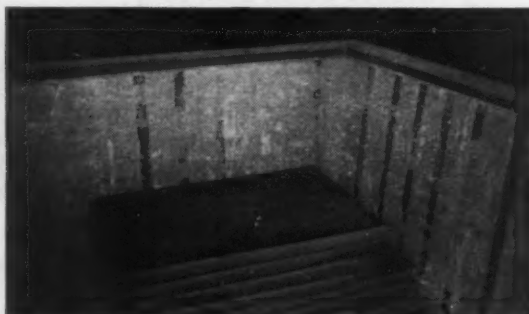
base pads; stack linings, flues and foundry floors. In these installations, and many others, it gives consistently better refractory service, under severe thermal shock.

CASTABLES ADD CONVENIENCE. Many prefer to buy prepared castables. These packaged mixtures of Lumnite and selected aggregates are tailor-made to meet your specific temperature and insulation requirements. Add only water. You can buy them from refractory manufacturers and dealers.

For more information about Lumnite, write Lumnite Division, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.



IF RECORDS mean anything, this Lumnite Refractory Concrete slow-cooling pit will still be going strong 5 to 10 years from now even though it absorbs constant battering and thermal shock.



NEED 'EM FAST? By pouring Refractory Concrete, as in this slow-cooling pit, you can save many hours, even days, over other types of refractory construction.

"LUMNITE" is the registered trade mark of the calcium-aluminate cement manufactured by Universal Atlas Cement Company.

IA-L-37

ATLAS®

LUMNITE for INDUSTRIAL CONCRETES

REFRACTORY, INSULATING, OVERNIGHT, CORROSION-RESISTANT

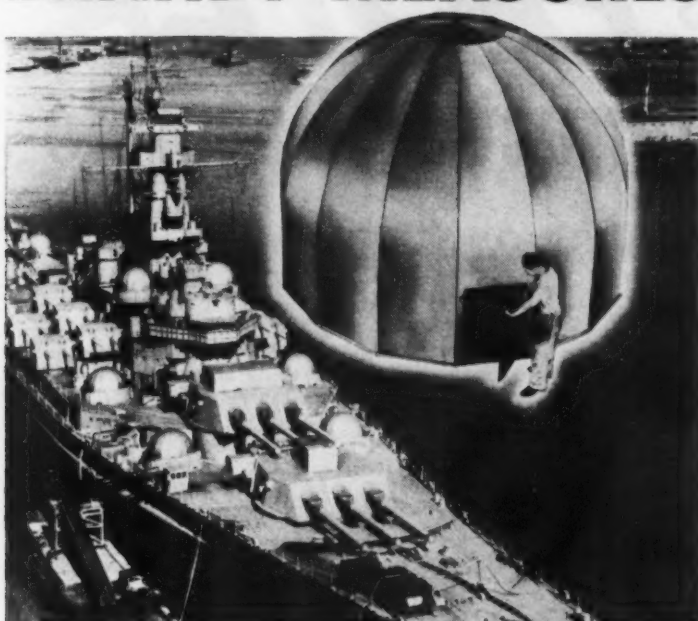


"THE THEATRE GUILD ON THE AIR"—Sponsored by U. S. Steel Subsidiaries—Sunday Evenings—NBC Network

November 2, 1950

149

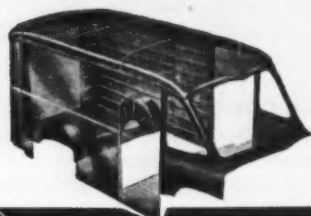
BRANDT MEASURES UP



Prime contractor, where Navy foresight paid off: "Putting Tha Fleet In Mothballs."

IN CONTRACT MANUFACTURE

FOR GOVERNMENT—



**METAL STAMPINGS
HEAVY WELDMENTS
PRESSED STEEL SHAPES**



—FOR INDUSTRY

Parts or complete assemblies mass produced to exacting specifications to on-the-dot deliveries.

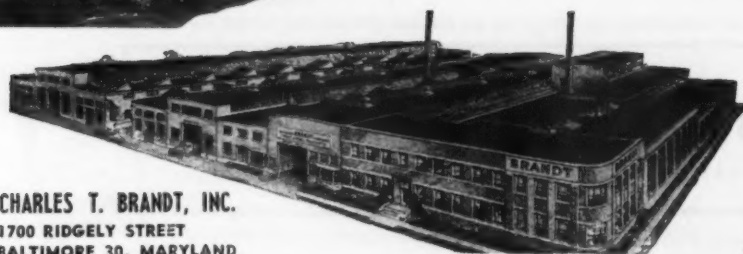


BRANDT

BALTIMORE

Giant presses, plenty of ferrous and non-ferrous working facilities strategically located near steel mills.

CHARLES T. BRANDT, INC.
1700 RIDGELY STREET
BALTIMORE 30, MARYLAND



IRON AGE MARKETS & PRICES

FOUNDED 1855

ELECTRODES

Cents per lb, f.o.b. plant, threaded electrodes with nipples, unboxed

Diam. in in.	Length in in.	Cents Per lb
GRAPHITE		
17, 18, 20	60, 72	17.00¢
8 to 16	48, 60, 72	17.00¢
7	48, 60	18.64¢
6	48, 60	19.95¢
4, 5	40	20.48¢
3	40	21.53¢
2 1/2	24, 30	22.05¢
2	24, 30	24.15¢
CARBON		
40	109, 110	7.65¢
35	65, 110	7.65¢
30	65, 84, 110	7.65¢
24	72 to 104	7.65¢
20	84, 90	7.65¢
17	60, 72	7.65¢
14	60, 72	8.16¢
10, 12	60	8.42¢
8	60	8.67¢

CLAD STEEL

Base prices, cents per pound, f.o.b. mill

Stainless-carbon	Plate	Sheet
No. 304, 20 pct.		
Coatesville, Pa. (21)...	*28.00	
Washgtn, Pa. (39)....	*28.00	
Claymont, Del. (29)....	*28.00	
Conshohocken, Pa. (26)		*24.00
New Castle, Ind. (55)...	*26.50	*25.50
Nickel-carbon		
10 pct, Coatesville (21)...	31.00	
Inconel-carbon		
10 pct, Coatesville (21)...	39.00	
Monel-carbon		
10 pct, Coatesville (21)...	32.00	
No. 302 Stainless-copper-stainless, Carnegie, Pa. (60)		77.00
Aluminized steel sheets, hot dip, Butler, Pa. (7).....		7.75

* Includes annealing and pickling, or sandblasting.

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	Base per lb
18	4	1	—	—	\$1.00
18	4	1	—	5	\$1.565
18	4	2	—	—	\$1.13
1.5	4	1.5	8	—	71.5¢
6	4	2	6	—	76.5¢
High-carbon-chromium					57.5¢
Oil hardened manganese					32¢
Special carbon					29.5¢
Extra carbon					24.5¢
Regular carbon					21¢

Warehouse prices on and east of Mississippi are 3¢ per lb higher. West of Mississippi, 5¢ higher.

COKE

Furnace, beehive (f.o.b. oven)	Net Ton
Connellsville, Pa.	\$14.00 to \$14.50
Foundry, beehive (f.o.b. oven)	
Connellsville, Pa.	\$16.50 to \$17.00
Foundry, oven coke	
Buffalo, del'd	\$25.25
Chicago, f.o.b.	21.00
Detroit, f.o.b.	23.00
New England, del'd	24.30
Seaboard, N. J., f.o.b.	22.00
Philadelphia, f.o.b.	22.10
Swedeland, Pa., f.o.b.	22.00
Painesville, Ohio, f.o.b.	23.25
Erie, del'd	\$22.29 to 22.50
Cleveland, del'd	22.62
Cincinnati, del'd	22.71
St. Paul, f.o.b.	21.00
St. Louis, f.o.b.	24.90
Birmingham, del'd	20.79

FLUORSPAR

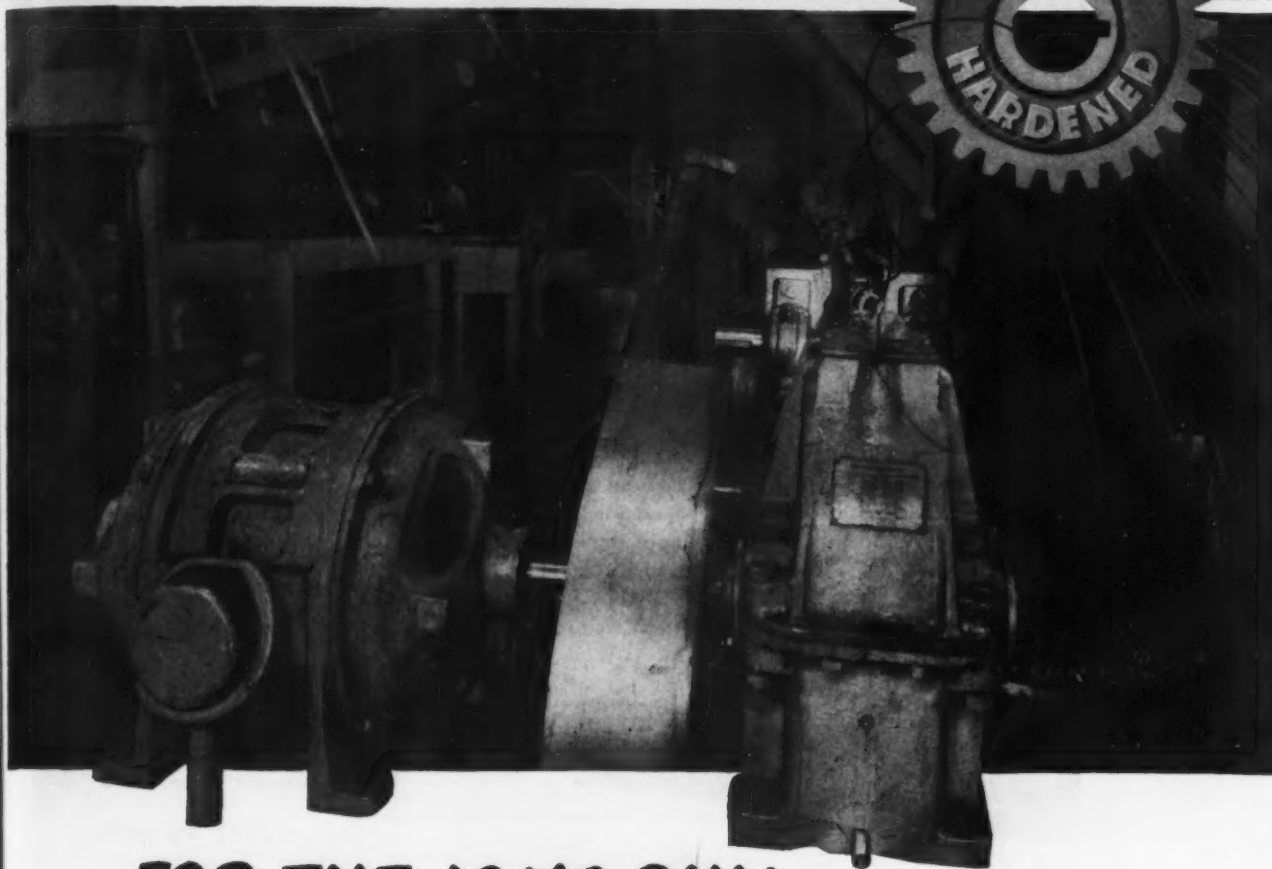
Washed gravel fluorspar, f.o.b. cars, Rosiclare, Ill. Base price, per ton net: Effective CaF ₂ content:	
70% or more	\$41.00
60% or less	38.00

C-R SPRING STEEL

Base per pound f.o.b. mill

0.26 to 0.40 carbon	4.50¢
0.41 to 0.60 carbon	5.95¢
0.61 to 0.80 carbon	6.55¢
0.81 to 1.05 carbon	8.50¢
1.06 to 1.35 carbon	10.80¢
Worcester, add 0.30¢; Sharon, New Britain, Carnegie, add 0.35¢.	

YOU CAN BE SURE.. IF IT'S
Westinghouse



FOR THE LONG PULL

WESTINGHOUSE SPEED REDUCERS PULL 16 MILES OF TUBING PER DAY

The Precision Tube Company of Philadelphia, Pa., depend on Westinghouse Motors and Speed Reducers to power the three drawbenches that produce these miles of seamless tubing for electrical instruments, gauges, antennas, pens and pencils.

They selected Westinghouse equipment because of the engineering service willingly supplied to perfect this special application. Precision Tube simply outlined their requirements and Westinghouse engineers followed through.

They are pleased with the results and particularly with the speed reducers. They report, "They require little looking after . . . we do not lubricate them oftener than once in six months."

When you have a problem in speed reduction, take advantage of Westinghouse engineering "know-how" acquired in over 60 years' experience in the production of geared drives.

For complete speed reducer data write the Westinghouse Electric Corporation, Dept. 1511, P. O. Box 868, Pittsburgh 30, Pennsylvania for DB 3700-SR.

J-07290



November 2, 1950

151

Specify

Quick-As-Wink AIR AND HYDRAULIC Control Valves



get **Millions of Cycles**
of efficient, trouble-free operation

● Quick-As-Wink Solenoid Valves are unsurpassed for positive, trouble-free, dependable service . . . they give users millions of cycles of fast, high speed — and safe — operation. All parts are rugged yet weigh only a few ounces, simplifying electrical circuits, and minimizing wear and maintenance. Careful exhaust porting assures high air economy. $\frac{3}{8}$ " to 2" sizes. 2, 3 or 4-way actions. Bucking cylinder or double solenoid return. Send for the data sheets. Get full details about Quick-As-Wink, America's outstanding valve line, today.

Individual **DATA SHEETS** for Each Valve
— give complete details. Write today!



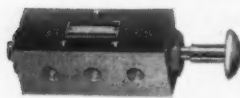
Hand Operated Air Valves—wide variety of uses. 2-way, 3-way, 4-way neutral position and compound exhaust.



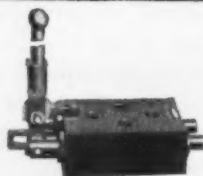
Foot Operated Air Valves—workman has both hands free, speeding production. 2-way, 3-way and 4-way actions.



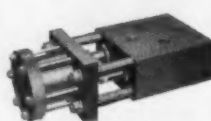
Single Plunger Valves—for air or low pressure hydraulic service. Lever, pilot, cam, diaphragm or solenoid operated. 2-way, 3-way, 4-way actions.



Series "O" and "OE" Valves—for air or hydraulic service up to 125 PSI. Push-pull, cam, pilot, diaphragm and solenoid operated. $\frac{1}{8}$ " and $\frac{1}{4}$ " pipe connections. 2-way, 3-way, 4-way and 5-way actions.



Hydraulic Valves—Up to 5000 PSI. Pilot cylinder operated. $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1" and $1\frac{1}{2}$ " sizes. 2-way, 3-way, 4-way actions.



Hydraulic Valves—Up to 5000 PSI. Pilot cylinder operated. $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1", $1\frac{1}{2}$ ", 2", $2\frac{1}{2}$ ", 3" and 4" sizes. 2-way, 3-way, 4-way actions.

Quick-As-Wink Control Valves

Manufactured by **C. B. HUNT & SON, Inc.**

1916 East Pershing Street, Salem, Ohio



IRON AGE MARKETS & PRICES FOUNDED 1855

REFRACTORIES

Fire Clay Brick (F.o.b. works)
Carloads, Per 1000
First quality, Ill., Ky., Md., Mo., Ohio, Pa.
(except Salina, Pa., add \$5) . . . \$94.00
No. 1 Ohio . . . 88.00
Sec. quality, Pa., Md., Ky., Mo., Ill. . . 85.00
No. 2 Ohio . . . 79.20
Ground fire clay, net ton, bulk (except Salina, Pa., add \$1.50) . . . 12.75

Silica Brick

Mt. Union, Pa., Ensley, Ala. . . . \$94.60
Childs, Pa. . . . 99.00
Hays, Pa. . . . 100.10
Chicago District . . . 104.50
Western Utah and Calif. . . . 111.10
Super Duty, Hays, Pa., Athens, Tex., Chicago . . . 111.10
Silica cement, net ton, bulk, Eastern (except Hays, Pa.) . . . 16.50
Silica cement, net ton, bulk, Hays, Pa. . . . 18.70
Silica cement, net ton, bulk, Ensley, Ala. . . . 17.60
Silica cement, net ton, bulk, Chicago District . . . 17.60
Silica cement, net ton, bulk, Utah and Calif. . . . 24.75

Chrome Brick

Standard chemically bonded, Balt., Chester . . . \$77.00

Magnesite Brick

Standard, Baltimore . . . \$99.00
Chemically bonded, Baltimore . . . 82.00

Grain Magnesite

St. %-in. grains
Domestic, f.o.b. Baltimore, in bulk fines removed . . . \$62.70
Domestic, f.o.b. Chewelah, Wash., in bulk . . . 86.30
in sacks . . . 41.80

Dead Burned Dolomite

F.o.b. producing points in Pennsylvania, West Virginia and Ohio, per net ton, bulk Midwest, add 10¢; Missouri Valley, add 20¢ . . . \$13.00

METAL POWDERS

Per pound, f.o.b. shipping point, in ton lots, for minus 100 mesh.
Swedish sponge iron c.l.f. New York, ocean bags . . . 7.4¢ to 9.0¢
Canadian sponge iron, del'd, in East . . . 10.00¢
Domestic sponge iron, 98+%, Fe, carload lots . . . 9.0¢ to 15.0¢
Electrolytic iron, annealed, 99.5+%, Fe . . . 36.0¢ to 39.5¢
Electrolytic iron unannealed, minus 325 mesh, 99+%, Fe . . . 48.5¢
Hydrogen reduced iron, minus 300 mesh, 98+%, Fe . . . 63.0¢ to 80.0¢
Carbonyl iron, size 5 to 10 micron, 98%, 99.8+%, Fe . . . 70.0¢ to \$1.35
Aluminum . . . 29.00¢
Brass, 10 ton lots . . . 30.00¢ to 33.25¢
Copper, electrolytic . . . 10.25¢ plus metal value
Copper, reduced . . . 10.00¢ plus metal value
Cadmium 100-199 lb . . . 95¢ plus metal value
Chromium, electrolytic, 99% min., and quantity . . . \$3.50
Lead . . . 6.5¢ plus metal value
Manganese . . . 52.00¢
Molybdenum, 99% . . . 82.65¢
Nickel, unannealed . . . 75.5¢
Nickel, annealed . . . 81.5¢
Nickel, spherical, unannealed . . . 78.5¢
Silicon . . . 34.00¢
Solder powder . . . 6.5¢ to 8.5¢ plus met. value
Stainless steel, 303 . . . 75.00¢
Tin . . . 11.00¢ plus metal value
Tungsten, 99% . . . \$3.40
Zinc, 10 ton lots . . . 20.50¢ to 23.55¢

CAST IRON WATER PIPE

Per net ton
6 to 24-in., del'd Chicago . . . \$95.30 to \$98.50
6 to 24-in., del'd N. Y. . . \$4.50 to \$5.50
6 to 24-in., Birmingham . . . \$1.50 to \$4.00
6-in. and larger, f.o.b. cars, San Francisco, Los Angeles, for all rail shipment; rail and water shipment less . . . \$108.50 to \$113.00
Class "A" and gas pipe, \$5 extra; 4-in. pipe is \$5 a ton above 6-in.
Prices Continued on Page 154

BUILDERS OF THE BRASS INDUSTRY



ROGER ELIOT GAY

(Tenth and Present President of BRISTOL BRASS)

... Wartime and peacetime leader who put Bristol on the national Brass map ...

Who modernized and humanized production, sales, and public relations ...

Who achieved balanced distribution ... Who first set and then met his own specifications for a "financially strong, physically healthy, and aggressive company"

Youngest president in Bristol history, Roger Gay took this chair (which he has hardly had time to sit in, since) in 1943, after several years as sales manager and vice president. Always willing to learn from older heads in the business, he stimulated ideas in the minds of his associates ... and built more and more solidly on the foundations laid by the nine preceding presidents.

In the war years, he served on any committee or any organization that would help

the Brass industry to do a better job for the armed forces. And when the war ended he went out and worked with the salesmen on the road, learning how to sell all over again. In the process, he balanced the sales set-up, improved and increased distribution of Bristol Brass sheet, rod and wire ... established new warehouses and sales offices ... built a new school of sales trainees ... and, in many other ways, made Bristol Brass a young, aggressive, hard-hitting, fast-moving organization ...

with (as has so often been said) *not an ounce of stuffing per shirt!*

Today, Bristol has a modern establishment, with a continuous casting machine in daily operation, and a new 4-high mill about to be installed. So it goes the same way today as it did 100 years ago ... *but even more so* — for if you want your Brass fast, right, and with no red tape, you can get it that way here — *faster and better than ever before!*

One Hundred Years of BRASS made "BRISTOL FASHION"

Like the world-famed merchant ships from Bristol, England ... Always prompt, shipshape, reliable

The BRISTOL BRASS CORPORATION, makers of Brass in Bristol, Conn. since 1850



November 2, 1950

153

POWER *Wherever You Turn!*

This WISCONSIN HEAVY-DUTY Air-Cooled ENGINE Mounts on the Steering Wheel!

Moving 4000 lbs. at a snail's pace or up to 8 mph. and maneuvering into any corner the truck will fit . . . all at a cost of one gallon of gas per 8 hour shift is the record of this Wisconsin-powered Hyster Salsbury Turret Truck, made by The Hyster Co., Portland, Ore.

New and unusual industrial service units are being introduced by manufacturers every day, to which Wisconsin Engines are assigned as the logical power choice. Wisconsin Engine features such as snug compactness, light weight, heavy-duty construction, tapered roller bearings at both ends of the crankshaft, fool-proof air-cooling at all seasons, and an easily serviced OUTSIDE magneto, with impulse coupling for quick starting . . . combine to give Wisconsin Engines preferential ratings as power components on a great variety of original equipment in many fields.

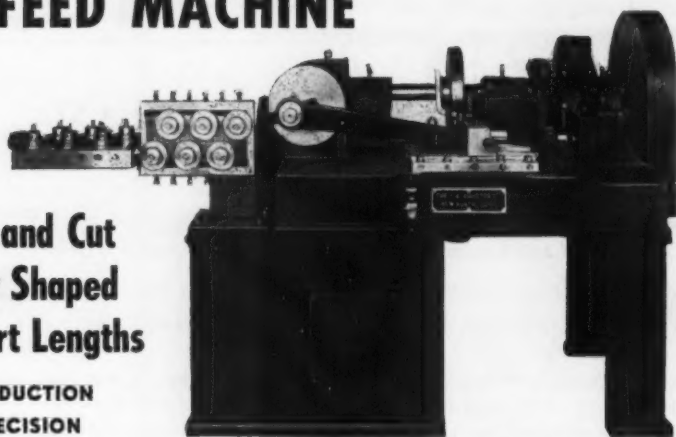
4-cycle, single-cylinder, two-cylinder, and V-type 4-cylinder types, 3 to 30 hp. Your inquiry is invited.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 46 WISCONSIN

SHUSTER *Automatic* SLIDE FEED MACHINE

Straighten and Cut Round or Shaped Stock, Short Lengths

**HIGH PRODUCTION
HIGH PRECISION**



Production, 125 pieces per minute.

Recommended wherever accuracy and a perfectly square cut are a "must." In this machine, the stock receives a *shearing cut* from two round dies. This method of cutting produces an accurately square cut and holds the length of cut to very close tolerances. Capacities: 3/8" and 9/16" diameters; lengths from 0 to 10"; production, 125 pieces per minute. May be had without the 12-roll straightener if your stock is already straightened. Detailed circulars on request. When writing please describe your set-up.

Mfd. by METTLER MACHINE TOOL, INC.

132A Lawrence St.

New Haven, Conn.

Representatives in all principal cities and foreign countries.

IRON AGE MARKETS & PRICES

Ferrochrome

Contract prices, cents per pound, contained Cr, lump size, bulk, in carloads, delivered. (65-72% Cr, 2% max. Si.)

0.06% C	23.75	0.20% C	27.75
0.10% C	23.25	0.50% C	27.50
0.15% C	23.00	1.00% C	27.25
2.00% C			27.00
65-69% Cr, 4-9% C			20.50
62-66% Cr, 4-6% C, 6-9% Si			21.35

High-Nitrogen Ferrochrome

Low-carbon type: 67-72% Cr, 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome price schedule. Add 5¢ for each additional 0.25% N.

S. M. Ferrochrome

Contract price, cents per pound, chromium contained, lump size, delivered.

High carbon type: 60-65% Cr, 4-6% Si, 4-6% Mn, 4-6% C.

Carloads	21.60
Ton lots	23.75
Less ton lots	25.15

Low carbon type: 62-66% Cr, 4-6% Si, 4-6% Mn, 1.25% max. C.

Carloads	27.75
Ton lots	30.05
Less ton lots	31.95

Chromium Metal

Contract prices, per lb chromium contained, delivered, ton lots. 97% min. Cr, 1% max. Fe.

0.20% Max. C	\$1.09
0.50% max. C	1.05
.00 min. C	1.04

Low Carbon Ferrochrome Silicon

(Cr 34-41%, Si 42-49%, C 0.05% max.) Contract price, carloads, f.o.b. Niagara Falls, freight allowed; lump 4-in. x down, bulk 2-in. x down, 20.50¢ per lb of contained Cr plus 11.30¢ per lb of contained Si.

Bulk 1-in. x down, 20.65¢ per lb contained Cr plus 11.50¢ per lb contained Si	
---	--

Calcium-Silicon

Contract price per lb of alloy, dump, delivered.

30-33% Ca, 60-65% Si, 3.00% max. Fe	
Carloads	17.90
Ton lots	21.00
Less ton lots	22.50

Calcium-Manganese-Silicon

Contract prices, cents per lb of alloy, lump, delivered.

16-20% Ca, 14-18% Mn, 63-59% Si	
Carloads	19.25
Ton lots	21.55
Less ton lots	22.55

CM5Z

Contract price, cents per pound of alloy, delivered.

Alloy 4: 45-49% Cr, 4-6% Mn, 13-21% Si, 1.25-1.75% Zr, 3.00-4.5% C.

Alloy 5: 50.56% Cr, 4-6% Mn, 13.50-16.00% Si, 0.75 to 1.25% Zr, 3.50-5.00% C	
Ton lots	19.75
Less ton lots	21.00

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. V-5: 33-42% Cr, 17-19% Si, 8-11% Mn.

Ton lots	15.75¢
Less ton lots	17.90¢

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis. Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed	17.00¢
Ton lots to carload packed	18.00¢
Less ton lots	19.50¢

SMZ

Contract price, cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe, 1/2 in. x 12 mesh.

Ton lots	17.25
Less ton lots	18.50

FERROALLOYS

Ferromanganese

78-82% Mn. maximum contract base price, gross ton, lump size.
F.o.b. Birmingham \$174
F.o.b. Niagara Falls, Alloy, W. Va.,
Welland, Ont., Ashtabula, O. \$172
F.o.b. Johnstown, Pa. \$174
F.o.b. Sheridan, Pa. \$172
F.o.b. Etna, Clairton, Pa. \$175
\$2.00 for each 1% above 82% Mn,
penalty, \$2.15 for each 1% below 78%.
Briquets—Cents per pound of briquet,
delivered, 66% contained Mn.
Carload, bulk 10.45
Ton lots 12.05

Spiegeleisen

Contract prices gross ton, lump, f.o.b.
16-19% Mn 19-21% Mn
3% max. Si 3% max. Si
Palmerton, Pa. \$64.00 \$65.00
Pgh. or Chicago 65.00 66.00

Manganese Metal

Contract basis, 2 in. x down, cents per
pound of metal, delivered.
96% min. Mn, 0.2% max. C, 1% max.
Si, 2% max. Fe.
Carload, packed 29.75
Ton lots 31.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed
east of Mississippi, cents per pound.
Carloads 28
Ton lots 30
Less ton lots 32

Medium Carbon Ferromanganese

Mn 80% to 85%, C 1.25 to 1.50. Contract
price, carloads, lump, bulk, delivered, per
lb. of contained Mn 18.15¢

Low-Carbon Ferromanganese

Contract price, cents per pound Mn con-
tained, lump size, del'd., Mn. 85-90%.
Carloads Ton Less
0.07% max. C, 0.06%
P, 90% Mn 25.25 27.10 28.30
0.07% max. C 24.75 26.60 27.80
0.15% max. C 24.25 26.10 27.30
0.30% max. C 23.75 25.60 26.80
0.50% max. C 23.25 25.10 26.30
0.75% max. C
7.00% max. Si 20.25 22.10 23.30

Silicomanganese

Contract basis, lump size, cents per
pound of metal, delivered, 65-68% Mn,
18-20% Si, 1.5% max. C. For 2% max. C,
deduct 0.2¢.
Carload bulk 8.95
Ton lots 10.60
Briquet, contract basis carlots, bulk
delivered, per lb of briquet 10.30
Ton lots 11.90

Silvery Iron (electric furnace)

Si 14.01 to 14.50 pct, f.o.b. Keokuk,
Iowa, or Wenatchee, Wash., \$82.00 gross
ton, freight allowed to normal trade area.
Si 15.01 to 15.50 pct, f.o.b. Niagara Falls,
N. Y., \$80.00. Add \$1.00 per ton for each
additional 0.50% Si up to and including
18%. Add \$1.00 for each 0.50% Mn over
1%.

Silicon Metal

Contract price, cents per pound con-
tained Si, lump size, delivered, for ton lots
packed.
96% Si, 2% Fe 20.70
97% Si, 1% Fe 21.10

Silicon Briquets

Contract price, cents per pound of
briquet bulk, delivered, 40% Si, 1 lb Si
briquets.
Carload, bulk 6.30
Ton lots 7.90

Electric Ferrosilicon

Contract price, cents per pound con-
tained Si, lump, bulk, carloads, delivered.
25% Si 17.00 75% Si 13.50
50% Si 11.30 85% Si 14.65
90-95% Si 16.50

Calcium Metal

Eastern zone contract prices, cents per
pound of metal, delivered.
Cast Turnings Distilled
Ton lots \$2.05 \$2.95 \$3.75
Less ton lots.. 2.40 3.30 4.55

Prices Continued on Page 156

over 90%
OF YOUR
MATERIAL HANDLING
REQUIREMENTS

— can be met with
STANDARD EUCLID CRANES,

whether they are put to Special or General
Purpose use. Standard Euclid Cranes are
available in capacities of 3, 5, 7-1/2, 10,
15, 20 and 25 tons in various spans.

All detail parts are standardized and
jig machined to assure interchangeability.

THE EUCLID CRANE & HOIST COMPANY
1351 CHARDON ROAD, EUCLID, OHIO

High grade, wide
face, coarse pitch
gearing.

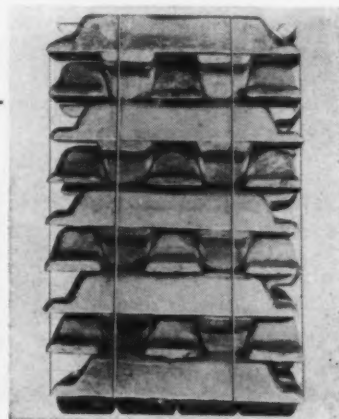
Shafts short and
heavy to withstand
stress.

Anti-friction
bearings through-
out.



Self-palletized bundle of aluminum pigs elimi-
nates cost or inconvenience of returning pal-
lets. Gerrard Round Steel Strapping holds
bundle firm and secure, is galvanized to re-
sist corrosion.

*Tied Right,
Tied Tight...*
with
GERRARD!



THERE's a Gerrard machine and size of strap to help you improve your
tying procedures. The Gerrard method of strapping gives added pro-
tection and security to small parcel post packages, heavy pallets, and
carload lots of steel pipe, plate and tinplate.

And Gerrard Strapping costs about 40% less than any other type of
metal reinforcement.

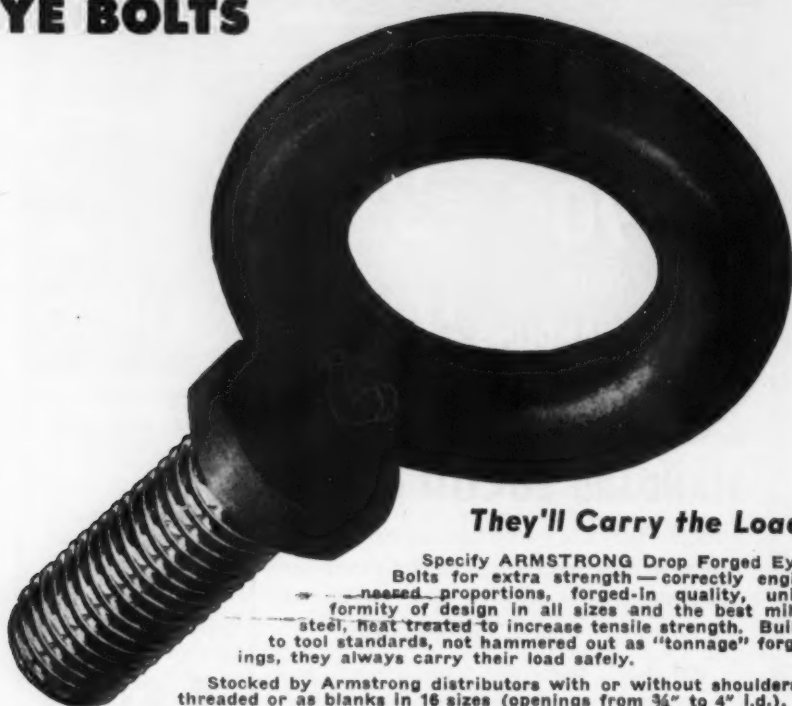
Ask a Gerrard engineer. He is equipped to give you expert advice and
the facts about the Gerrard method of strapping. His services are avail-
able free of charge. Write for a free copy of the *Blue Book of Packaging*.
Gerrard Steel Strapping Company, 4705 So. Richmond Street, Chicago 32, Ill.



**GERRARD
ROUND STEEL STRAPPING**

UNITED STATES STEEL

ARMSTRONG *Drop Forged* EYE BOLTS



They'll Carry the Load

Specify ARMSTRONG Drop Forged Eye Bolts for extra strength—correctly engineered proportions, forged-in quality, uniformity of design in all sizes and the best mild steel, heat treated to increase tensile strength. Built to tool standards, not hammered out as "tonnage" forgings, they always carry their load safely.

Stocked by Armstrong distributors with or without shoulders, threaded or as blanks in 16 sizes (openings from 3/4" to 4" I.D.).

Write for Catalog



ARMSTRONG BROS. TOOL CO.

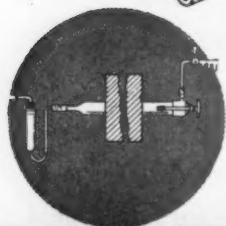
5209 W. Armstrong Avenue

Chicago 30, U.S.A.

Eastern Warehouse and Sales: 199 Lafayette St., New York 12, N. Y.
Pacific Coast Whse. and Sales Office: 1275 Mission St., San Francisco 3, Calif.

Longer Life with...

MCDANEL High Temperature COMBUSTION TUBES



McDaniel Porcelain Combustion Tubes and Zirco Tubes are precision made. Density, bore size, wall thickness, etc. are carefully controlled to assure maximum resistance to thermal shock, accurate fit and gas tightness. Cast as a single unit, they defy devitrification—give longer service and lower replacement costs. For carbon and sulphur determinations, McDaniel Tubes are tops.

Leading metallurgists in the steel and iron industries say: "McDaniel Tubes stand up well under extremes in temperature"—"Never spall or blister"—"Highly satisfactory in every respect".

Specify McDaniel High Temperature Porcelain Combustion Tubes and Zirco Tubes from your supplier.

MCDANEL

Refractory
Porcelain Co.

Beaver Falls
Penna.

OTHER MCDANEL PRODUCTS

- Non-spalling, non-blistering, gas tight Combustion Tubes.
- High Temperature Zirco Tubes.
- Self Cooling Combustion Tubes.
- Refractory Porcelain Specialties in stock or designed to meet your needs.

IRON AGE FOUNDED 1855 MARKETS & PRICES

Other Ferroalloys

Alaifer, 20% Al, 40% Si, 40% Fe, contract basis, f.o.b. Suspension Bridge, N. Y.	
Carload	7.65¢
Ton lots	9.05¢
Calcium molybdate, 45-40%, f.o.b. Langeloth, Pa., per pound contained Mo	9¢
Ferrocolumbium, 50-60%, 2 in x D, contract basis, delivered, per pound contained Cb.	
Ton lots	\$3.50
Less ton lots	3.55
Ferro-Tantalum-columbium, 20% Ta, 40% Cb, 0.30 C. Contract basis, delivered, ton lots, 2 in. x D, per lb of contained Cb plus Ta	\$2.67
Ferromolybdenum, 55-75%, f.o.b. Langeloth, Pa., per pound contained Mo	\$1.23
Ferrophosphorus, electrolytic, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., \$3 unitage, per gross ton	\$65.00
10 tons to less carload	76.00
Ferrotitanium, 40%, regular grade, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	\$1.38
Ferrotitanium, 25%, low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Bridgeville, Pa., freight allowed, ton lots, per lb contained Ti	\$1.40
Less ton lots	\$1.45
Ferrotitanium, 15 to 19%, high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton	\$167.00
Ferrotungsten, standard, lump or 3/4 x down, packed, per pound contained W, 5 ton lots, delivered	\$2.50
Ferrovanadium, 35-55%, contract basis, delivered, per pound, contained V.	
Openhearth	\$2.90
Crucible	3.00
High speed steel (Primos)	3.10
Molybdc oxide, briquets or cans, per lb contained Mo, f.o.b. Langeloth, Pa.	\$1.04
bags, f.o.b. Washington, Pa., Langeloth, Pa.	\$1.03
Simanal, 20% Si, 20% Mn, 20% Al, contract basis, f.o.b. Philo, Ohio, freight allowed, per pound	
Carload, bulk, lump	11.00¢
Ton lots, bulk lump	11.50¢
Less ton lots, lump	12.25¢
Vanadium pentoxide, 88-92% V ₂ O ₅ , contract basis, per pound contained V ₂ O ₅	\$1.20
Zirconium, 35-40%, contract basis, f.o.b. plant, freight allowed, per pound of alloy.	
Ton lots	21.00¢
Zirconium, 12-15%, contract basis, lump, delivered, per lb of alloy.	
Carload, bulk	6.60¢

Boron Agents

Contract prices per lb of alloy, del.	
Borosil, f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B	\$4.25
Bortam, f.o.b. Niagara Falls	
Ton lots, per pound	45¢
Less ton lots, per pound	50¢
Carbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4.5-7.5% f.o.b. Suspension Bridge, N. Y., freight allowed.	
Ton lots, per pound	10.00¢
Ferroboreon, 17.50% min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D. Ton lots	\$1.20
F.o.b. Wash., Pa.; 100 lb, up	
10 to 14% B.	.75
14 to 19% B.	1.20
19% min. B.	1.50
Grainal, f.o.b. Bridgeville, Pa., freight allowed, 100 lb and over.	
No. 1	93¢
No. 6	63¢
No. 79	45¢
Manganese-Boron 75.00% Mn, 15-20% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, delivered.	
Ton lots	\$1.46
Less ton lots	1.57
Nickel-Boron 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, delivered.	
Less ton lots	\$1.80
Silicaz, contract basis, delivered.	
Ton lots	\$5.00¢



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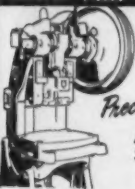


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11

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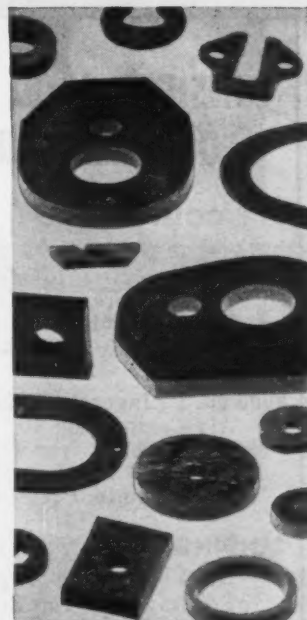
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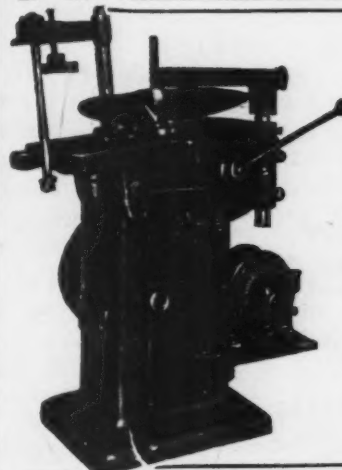
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NEWS OF USED, REBUILT AND SURPLUS MACHINERY

Used Machinery Inventory—The National Production Authority has asked the Machinery Dealers' National Assn. to conduct an inventory of used machine tools in the hands of dealers and rebuilders. MDNA members will receive questionnaires by mail shortly. In order for the survey to be of value to the government, information from as many dealers as possible should be included. Therefore, all nonmember dealers and rebuilders are urged to write to MDNA headquarters, 20 N. Wacker Drive, Chicago, for a copy of the questionnaire.

New Boss—Henry R. Sanford has been elected president of Llewellyn Associates, Inc., new and rebuilt equipment dealers. He succeeds the late Thomas Llewellyn, and will continue to operate the business in accordance with established policies.

Chicago MDNA—The Chicago chapter of the Machinery Dealers' National Assn. met October 28 under the chairmanship of Edward Johnson. Several new members were admitted, and Elliott Blumberg reported on the recent national board of directors' meeting.

Frank Laurens, MDNA president, spoke on European conditions, emphasizing that it is important that contacts made with European importers be maintained, even though the domestic market may be more attractive at the present time.

Cleveland Market—Scarcity and prices of good used machine tools have reached an all-time high in Cleveland, in a market which is described as close to hysteria. Prices for good used machines are within three or four hundred dollars of the new machine cost, and even closer in some cases. At a recent Eastern auction, several machines sold at less than \$300 of the price for the same equipment when new.

In top demand in Cleveland are

punch presses, automatic bar and chucking machines, and toolroom lathes. Other items are also in short supply, but these are the machines currently most sought after.

Business Expenses Up—The higher prices for used machinery do not necessarily represent increased gravy for dealers. In the first place, of course, dealers have to pay higher prices for the machines they acquire for resale. In addition, the cost of obtaining machines to sell, aside from their price, is also increasing. In the uphill fight to replace stocks, dealers have resorted to putting men on the road, full time, to locate machines.

Buying trips range far and wide, and often, these days, turn out to be wild goose chases. Most dealers are advertising more heavily than ever before, both to locate machines to sell, and to create more interest in their slower-moving, older machines.

Behind Today's Market—Dealer sources summarize the reasons for today's hectic used machinery market as follows:

Deliveries of new machine tools are greatly extended. As a result, plant releases of used equipment have slowed up accordingly.

Some companies, anticipating defense business or at least sub-contracts, are keeping their used machines in anticipation of an expanded volume of production, instead of selling them.

The general business situation is so good that plant failures are at a minimum. The number of plant auctions, sales, and liquidations has dropped during the past 6 months. Thus a good source of used machines is drying up.

Big dealers, and combinations of dealers, are buying out entire plants, when available. They cull out the good machines for their own stocks, and only the older equipment goes on the auction block.